

AMERICAN FRUIT CROWER MAGAZINE

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July 1922

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Edited by Samuel Adams

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No. 7

Listen When Your Trees Talk to You

By C. I. Lewis

TREES continually talk to us in a language which is easy to understand, if you will but lend a sympathetic ear. Through their leaves, twigs and bark they tell us a story of the processes that are going on in the tree. Fortunate is the man who will but listen to their story and note thereby nature's changes which are slowly taking place. A tree never becomes devitalized or enters a decline suddenly; these changes are all gradual. Every fruit grower should train himself to be a good observer and detect tendencies to changes which are starting, and thus be enabled to do those things which will keep the tree in a vital condition, healthy, growing and productive.

Fruit Grower Sam Jones took a party of his friends one Sunday afternoon to show them the orchard and, peculiarly, for the first time in his life he really seemed to hear the voices of the trees calling to him. He first passed down through a block of young, three-year-old apple trees. "Look at us," they cried. "See how the green aphids have curled our leaves and are sapping the vitality from our tender shoots." On the other side a cherry tree called: "Look how the black aphids are ruining our tender shoots! Oh, why did you not jump in and use nicotine, either in a liquid or dust form? You could have saved our torture." From there, the party passed to a group of trees having thin, yellow, small leaves. There was but little twig growth and the bark had taken on a red and yellowish cast. What few apples these trees bore were small. "See," called these trees to Farmer Jones and his friends, "we are choking and starving to death. Give us more water and give us nitrogen! Last spring you let all the water get out of your ground and you haven't grown a cover crop or fertilized or manured this piece of ground in years. Don't you know that we are entering a decline that we may not come out of for years—that our buds are weak—that frost will kill our blossoms easily next spring—that we will not be able to resist the winter's cold?"

Jones was next attracted by a group of trees that had shed a large percentage of their crop. "Oh see," said the trees, "the codling moth has cooked our crop. You put out a calyx spray but you forgot to put on the cover sprays, and most of our apples are wormy and the crop will be nearly an entire loss to you."

Over to the right was a group of Grimes which Fruit Grower Jones was very proud of, but to his astonishment he noticed some of these trees were in distress. "Oh yes," they said to him, "you have been told for years and years that you could not grow Grimes unless you double-worked them. Collar Rot has got in its deadly work and girdled us." A few other trees showed dead branches and rosettes of leaves. The fruit was getting brown on the inside and corky tissue was developing. "Well," said these trees to Sam, "what

TREES continually talk to us in a language which is easy to understand, if you will but lend a sympathetic ear. Through their leaves, twigs and bark they tell us a story of the processes that are going on in the tree. Fortunate is the man who will but listen to their story and note thereby nature's changes which are slowly taking place.

do you expect? You let our roots stand in water all winter, you gave us little or no tillage and never any mulching. We have no plant food—first we have too much water and then too little. Don't you know that this condition has put us in the state of health we are now in?"

Farther along, the party came to some trees which had a good crop but the apples were very small. "Well," said these trees to Sam, "this is the last crop you will get from us for about three years. We are exhausting our vitality in growing a great crop of small apples. All our energy is going into producing too many seed; our buds are weak—in fact we have but few fruit buds for next year and you will have to give us the rest cure for the next three seasons."

Sam began to wish he had not brought his friends through the orchard, and started back for the house, but on the way he passed through a group of Ben Davis and Yellow Transparent trees, and they were sick. As he went by them they called: "Sam, why are you letting Blister Canker ruin us? Don't you know it has killed ten million trees in the middle west in the past few decades? If you would only cut our broken branches cleanly—first cover the wounds with shellac and as soon as dry, cover with gas tar, and if you would cut out the dead places and treat them in the same way, you could save us, but unless you help us soon, Sam, we are doomed."

The next group of trees, McIntosh and Jonathan, were certainly in bad shape. Scab had curled and distorted the leaves and great olive green blotches were covering the fruit; many of the twigs were hoary white with mildew. "Hold on, Sam," they called to him, "why did you not put on the delayed dormant and pink spray of lime and sulphur, and follow up with the calyx and cover sprays, with either

summer strength lime sulphur 1 to 50 or Bordeaux mixture? You could have controlled this scab and mildew and instead of having culls you would have first class fruit, and you would also help us retain our vitality. You cannot grow such aristocrats as we are, Sam, unless you fight scab and mildew."

By this time Sam was beginning to walk away rapidly towards the house—he wanted to get out of that orchard—but some Northern Spy and King apple trees yelled so loud that he had to stop. "No, we haven't any apples on, and we won't have as long as you cut us all to pieces every winter. Look at the water sprouts and the thick growth covering us," Sam said, "Oh well, I will get in next winter and help you out." "Oh, don't wait, Sam—do it now, do it now! There is no time like the present to cut out water sprouts."

In desperation, Sam veered off to the left to show his friends a small group of peach trees he had been proud of, but lo and behold, the leaves were curled; many of the leaves had dropped from the trees; the fruit was small and spotted. The Peach Leaf Curl had done its deadly work. "Oh Sam, why did you not spray during the dormant season or just before the growth started, with Bordeaux mixture, or lime and sulphur winter strength? You would have saved us all this trouble. We probably will not have a very good crop of peaches for you even next year, Sam, and in a few years we will die if you do not wake up."

In going up to the house, Sam led his friends through the home orchard where he had a fine collection of cherries and pears. One of his friends said: "Sam, what makes those cherry and pear trees look so peculiar? Their leaves look almost white"—but before Sam could answer, the tree sang out, "Oh, the pear slugs are eating up our

leaves. You know, Sam, a little dust to dry up the bodies of the slugs or a weak solution of arsenate of lead would have killed the slugs and saved our lives. Of course, we are greatly weakened and you cannot expect us to develop as strong buds as we would if you had kept the slugs away. Yes, and we are wormy," yelled the cherries. "You know, Sam, a weak solution of arsenate of lead—two pounds of arsenate of lead to fifty gallons water, or a little poison sweetened bate thrown on a few branches would have killed the flies and you would not have had a crop of wormy cherries."

That evening, neighbor Bill Jones came over to see Sam, and Sam told Bill all the troubles he had run into and said: "Well Bill, I have concluded there is nothing in fruit growing and I am going to pull that orchard out—it is simply going to wreck and ruin and there is no money in fruit, anyway." "Oh pshaw," Sam said Bill, "you surely would be crazy to cut down that fine orchard. Why, I sold over \$10,000.00 worth of fruit from my small orchard last year and will have over \$20,000.00 this year, and I am surely getting on my feet raising fruit. Now, Sam, don't let your feelings get hurt, for I am going to talk mighty plain to you. Now, your tillage this spring was very late; in fact you did not get on to the ground until most of the moisture was gone. You haven't horsepower enough. Why don't you buy a tractor with a good disc and some good drag harrows, the way I did some few years ago? It has been the best investment I ever made. You need all the horses you have to help out on the cultivation and to pull the spray rigs, but they cannot do your work in the short time you have in the spring. Now, Sam, that old spray rig of yours is a joke; in fact, it was junk two years ago; you cannot get any pressure at all with it and you cannot cover a big area in a short time. You had just better get rid of that and put you in a good powerful spraying machine this coming spring, and in addition, buy you a dusting outfit to supplement your liquid spraying so that you can get out quick and fight the pests rapidly when you have to. Instead of cutting the trees all to pieces every three or four years, Sam, go out there every winter and do a little moderate pruning and when you find you have some trees dragging down with a crop of fruit, thin them down so that they will have nice, large specimens. I will be mighty glad to help you and give you suggestions, and you know there are lots of bulletins and papers you can get which will help you. If you will just get in and till this orchard early, spray it five or six times a year in good shape and practice a little pruning and thinning, you will make more money from that block of fruit than from four or five times as much land in farm crops."

"Well," said Sam, "I believe you are right, Bill, and I am going to take your advice."

Equipment for the Farm Factory

By W. W. Chenoweth

Next Month Mr. Chenoweth will tell us what to manufacture in the farm factory

THE equipment necessary to operate a small farm factory successfully depends entirely upon the type of work and the amount of products produced.

The most important item is the source of heat. As a general rule gas is to be preferred, lacking this one must use oil stoves or wood or coal range.

The last is, of course, least desirable because of the greater heat in the room and lack of control. With either gas or oil there is less heating of the room and within certain limits the heat is under control. The wood or coal range may be used very successfully in canning if located in a room adjoining that in which all the preparation of materials is done. But for the manufacture of jams, jellies and such products that require constant attention, the range becomes very uncomfortable except in the cool autumn days.

The factory room should be equipped with enough heating apparatus to take care of all the work being done so that there is no desire to slack the cooking period of any product because there is another lot ready to be set over the fire.

For a small factory doing a business of a few hundred up to six or eight thousand dollars there should be three two-burner stoves or gas plates.

Required Canning Equipment

Canning equipment should consist of two medium sized hot water baths and one or two steam pressure cookers, especially for canning vegetables and meats. The saving in time and fuel will pay for them in one or two seasons, while spoilage is reduced to a minimum.

The pressure cookers should be of aluminum as they are light, easily handled and are as a rule more accurately fitted together, being steam tight which is very essential when canning in glass.

The hot water baths are generally most economical if made to order by a good tinsmith. They should be made of medium or heavy galvanized iron and should be of a size to approximately fit the stove or gas plate. They should be four or five inches deeper than height of jars to be cooked in them and there should be a cover over the top and a rack of some sort in the bottom.

The vessel for blanching should be rather deep so that it may be used to blanch in boiling water or by fitting a rack three or four inches from the bottom it may be used to blanch in steam. When blanching in steam a fairly tight cover will be necessary.

Other pieces of equipment necessary are knives, cheesecloth for blanching,

scales, cups and spoons, jar lifters and an assortment of pans, buckets or other utensils for preparing raw materials.

General Manufacturing Equipment

Much of the equipment described above for canning may be used also in the manufacturing of jams, jellies, butters, pickles, etc. The additional equipment would consist, largely of cooking utensils, of sufficient number to accommodate the number of workers. They should not be of large size because one of the chief factors in producing high quality products is a short cooking period and in order to obtain this the cooking must be in small lots.

One person working alone will need three or four ten or twelve-quart kettles, one eight-quart saucepan, a good colander, a fine wire sieve, two large metal spoons, one or two small spoons, a small fruit press, several squares of good grade cheesecloth, a paraffin pot, a cup measure, a quart measure, a set of measuring spoons, a good thermometer and perhaps a few other odds and ends dictated by personal preference. Additional workers would not necessarily call for a complete duplication of the above. A slight over-investment in cooking utensils, however, is better than lack of facilities for handling all materials promptly.

The question of kind of equipment is a debatable one. Some prefer agate or porcelain lined ware, others prefer aluminum. There is not a great deal of difference in the first cost of equal quality but the aluminum will, as a rule, outlast any other ware, and in the long run is the cheapest. There are, however, a few products that cannot be handled in aluminum vessels. Strong alkalis should never be placed in vessels of this kind.

Cost of Equipment

The approximate cost of equipment for two or three workers will vary with locality and care in selection, but not including the heating apparatus need not exceed \$125, if pressure cookers are purchased. If these are omitted the cost need not exceed \$75.

The largest item in getting the business started will be the containers. These should be of uniform type of clear glass. Customers want to see what the products look like and this is feasible only when clear glass is used.

Canned fruits and vegetables will sell most readily in small packages. The pint or at most the nineteen ounce jar makes the most desirable sized package. Jams, butters, preserves and marmalades sell best in small packages. The tall half pint jars are large enough and many find that quarter pints sell equally well. Jellies should go into six ounce screw cap glasses. The old-fashioned slip cap gives too much trouble where jellies are handled in large quantities. If a special market is developed two and four ounce jelly glasses may be found profitable.

Labels for all packages should be small, neat and uniform. They may be obtained from a local printer on gummed paper. They should carry the name and address of the manufacturer, the name of the product and net contents of package, and such advertising as may be desired.

The Specialist's Equipment

The special manufacturer will require equipment suited to the materials he handles and to the products he manufactures. So wide a variation exists that it is not possible to discuss each in detail.

The first essential piece of equipment is a good cider mill. It is economy to pay more for the right kind of mill since the increased yield of cider and the high quality of it will soon make up the difference between the cost of a good mill and a poor one. The mill should have a grater for grinding the apples, a hydraulic press for pressing out the juice and some kind of power will be necessary to operate the mill, steam or gasoline engine or electric motor.

Needed Cider Equipment

If the cider is to be sold as sweet cider every precaution possible must be taken to keep it from fermenting.

Gallon glass jugs are excellent market containers. These should be filled with the fresh sweet cider and set into a refrigerator or into a tank of ice and water and should be sold before forty-eight hours old. Anyone engaged in this business should obtain from the Internal Revenue Office a permit to manufacture and sell vinegar. Then any cider not sold while sweet can be emptied into barrels and made into vinegar.

If the sweet cider is to be manufactured into products other than vinegar additional equipment must be had, the kind and amount depending upon the products to be manufactured.

The other chief marketable products are bottled or pasteurized sweet cider, boiled cider, cider jelly and apple butter. If any of these products are to be manufactured in quantity the first essential piece of equipment will be a boiler. If the manufacturing is on a relatively small scale a boiler of ten to fifteen horse power will be large enough.

If cider is to be pasteurized the following will need to be added: a continuous pasteurizer, a storage or settling tank, a filter, a bottler, a bottle washer, bottle capper and processing bath.

If apple butter only is to be made an apple butter cooker, colander and processing tank must be added to the boiler.

If cider jelly and boiled cider are made a fruit juice evaporator will be added to the boiler. If one contemplates manufacturing the whole line of products then all the above equipment will be required. Containers for the various products are as follows: Pasteurized sweet cider in pint and quart bottles with crown cap seal. Apple butter in two, four and ten-pound earthenware crocks or jars hermetically sealed. Boiled cider in pint bottles.

Cider jelly if sold in bulk in wooden pails of three to five pounds, if to special trade in small glass or fiber cups of six or eight ounce size.

The expense of equipping a place to do the above work will vary considerably depending upon size of equipment purchased. It is therefore difficult to give an accurate estimate but it need not exceed \$1500 to \$2500, not including building and containers. If the bottling of pasteurized sweet cider is omitted the expense may be very much reduced, since the bottling equipment, i. e., pasteurizers, filters and bottling and capping machinery are rather expensive.

A power cider mill of hydraulic press type, apple butter cooker and boiler should not cost above six or seven hundred dollars. If a hand hydraulic cider press is used the cost would fall below four or five hundred dollars. However, the cider mill is the important piece of equipment for a factory of this type since it determines not only the yield of cider per bushel of apples but influences the quality of the cider also. A good mill with a capacity for several barrels per day will be found most economical in the long run.

In the Berry Fields in Summer

By Samuel Adams

AFTER the harvesting of the berry crop, there is a general tendency to let down on the work in the patch. This is often a great mistake as some of the most effective work of the year can be done right after the harvest.

The three factors that probably determine successful berry culture are: Tillage, Fertilization, Pest Control. These can all receive some attention during the summer months.

The Strawberry

Under average conditions in the east, a strawberry bed should not be kept more than one or two years in fruiting. In portions of the west beds can be kept for several years longer than this. There is a tendency, however, after a couple of years, for diseases and insects to increase, and a good way to help control this condition is to plow up the patch as soon as the crop is harvested. In the south the land can be sown to advantage to cow peas, while in the north buckwheat makes a good crop. In sections of the country, however, where leguminous

crops can be produced, we would always recommend the growing of the same, because of the soil building value. In the Pacific Northwest, such crops as Aberdeen and cowhorn turnips, Rape and Vetch can be drilled in during July and will generally furnish very good hog feed for the fall, winter and early spring. The remaining portions can be plowed under at that time to help build up the soil.

In irrigated sections it will often be found to advantage to let the beds dry out slightly after harvesting, mow the tops and burn them, then re-irrigate and bring on a new, healthy green top.

Raspberries and Blackberries

Disease seems to be the greatest limiting factor in the growing of cane fruits successfully, and one of the most efficient ways of controlling these diseases is to cut out the old fruiting canes and any diseased or weak new canes, and burn them. This should be done immediately after the harvest.

While some growers have practiced chopping up these canes and disking them into the soil, claiming they have fertilizer value, still on the whole it is safer not to follow this practice but to burn the prunings and thus destroy many of the spores which would otherwise weaken the young canes.

Anthraxnose is one of the worst pests attacking cane fruits. Spraying in the early spring before the buds start, with copper sulphate one pound, to twenty-five gallons, will help control this disease; a second spray with Bordeaux 4-4-50 when the young canes are about eight inches high, and spraying with Bordeaux, summer strength, after the old canes have been removed, is sometimes recommended.

Orange Rust is a very serious disease on the blackberries and black raspberries. It turns the leaves a yellowish green. They tend to become narrow and long and later little orange or red eruptions appear. There is no cure in the way of spraying for this

disease but cutting out and burning should be followed as soon as detected.

The same can be said for Cane Blight or Cane Wilt. Cutting and burning is the cheapest and most efficient method of control.

Summer Pruning

Black caps are often summer pruned. This is generally done by June; occasionally a small amount is done in July, especially with varieties that tend to become too scrawly and rangy. Summer pruning can also be done to advantage on the Pacific coast with the Evergreen Blackberry by cutting back the rangy terminals so as to force the plant to form sort of a compact hedge. Better berries are produced on this type of plant and it is much easier to handle the harvesting.

At all times keep up sufficient tillage so that the young shoots do not suffer. This tillage should not be carried on too late in the fall, however. The plants should be given sufficient opportunity to harden well, but you cannot expect heavy crops of berries

(Continued on page 9)

Growing Pecans at a Profit

By F. H. Jeter

WHEN any crop can increase land values in the space of a few years from \$20.00 to an average of \$300.00 per acre and in some cases to as high as \$750.00 to \$1,000.00 per acre, this crop returns a profit that is not all paper. This is what paper shell pecans have done around Albany, Ga.

Sixteen years ago the first attempt at growing pecans commercially in this district was begun by Patterson and Taylor. At the death of Mr. Taylor, Mr. J. M. Patterson took over the active supervision of the groves, and has developed his own groves to where they pay substantial profits, also serve as an inspiration to others.

Prof. John Craig of Cornell University in looking for a place to develop a commercial horticultural project investigated several sites and concluded that the pecan offered tremendous possibilities in the Albany district. Here the lands were cheap, hardwoods flourished and the soil was fertile or could easily be made so. Mr. Patterson became interested in the work of Prof. Craig and came South to play a part in developing the pecan industry. His organization now owns about 6,000 acres of groves at Putney, Albany and Dewitt, Ga. The trees are from 8 to 18 years of age, and are beginning to return handsome profits on the original investment. In developing his business, Mr. Patterson formed the Paper Shell Pecan Growers Association, composed of people who have purchased grove units from his company.

Cost of Development

I asked him just what it cost to put out a grove. He replied, "We have to pay \$50.00 an acre now to get good, raw land. We get the ground in shape. The trees and planting cost from \$35.00 to \$40.00 per acre, making the initial cost around \$100.00 per acre. We have paid from 80c to \$1.25 for good nursery stock budded to the varieties desired. We are now charging each owner \$18.00 an acre a year for the care and cultivation which we give the groves. This does not include the cost of fertilizer, of gathering and marketing."

Mr. Patterson states it is not a get-rich-quick scheme, and that the man who thinks it is will be disappointed. The groves do not begin to pay real profits until the trees are about 12 years of age. Previous to this, they must be carefully cultivated and looked

after. Not much pruning is required, but it is necessary to keep off the broken and damaged limbs, and to shape up certain trees during the course of a season. The better the condition of the soil, the better the profits when the trees reach bearing age. For this reason, Mr. Patterson has grown cowpeas and velvet beans for plowing under nearly every year in all the groves. He has used very little fertilizer until this year.

Fertilizer Worth While

Investigations made by Dr. J. J. Skinner of the United States Department of Agriculture, show that fertilizers play an important part in increasing the yield and quality of nuts. As a result, Mr. Patterson says that he has secured an increase of from 4 to 10 pounds of nuts per tree, depending on the age and variety.

Dr. Skinner recommends, for trees from 1 to 8 years of age, a mixture analyzing 8 per cent available phosphoric acid, 6 per cent ammonia and 3 per cent potash. For trees 9 years old and older, a mixture containing 9 per cent available phosphoric acid, 5 per cent ammonia and 3 per cent potash. He says "Fertilizers of the

composition given above have given good results in soils of moderate fertility where leguminous crops were grown and turned under for manuring purposes. On soils where no intercropping is practiced for plowing under, or on very light, thin soils, better results will probably be secured from a fertilizer containing a higher per cent of ammonia.

"Trees 8 to 9 years old should receive a minimum of 20 pounds of any of these mixtures per tree; trees 10 to 12 years old a minimum of 25 to 30 pounds, and trees above 15 years old, not less than 40 pounds. Apply the fertilizers in early spring before or about the time the trees bud out. Spread in a band around the trees, beginning 4 to 5 feet from the trunk and extending slightly beyond the spread of the branches and harrow or disk in after the ground is plowed."

What Are the Profits?

The age of the groves in the Paper Shell Pecan Growers Association ranges from about 8 to 16 years, or averaging about 12 years. It gathered its first crop of nuts in 1913, with a yield of 6,000 pounds. In 1921, the crop was 600,000 pounds and the trees

are just beginning their period of greatest usefulness. Mr. Patterson states that the nuts sold last season at a price ranging from 45 to 90 cents in the shell, depending on the variety and grade. The average price for one-quarter of a million pounds sold in the shell was 53½ cents per pound f. o. b. shipping point. His 13 and 14 year old trees yielded about 300 pounds of nuts to the tree last year.

Mr. Patterson makes three grades of unshelled nuts—extra fancy, fancy and number three. All are sold in barrels containing from 170 to 200 pounds, and in boxes banded with iron and containing about 50 pounds. This past season he began the practice of vacuum packing pecan meats in glass and tin containers. This practice would, he felt, build up a trade in fancy meats kept fresh and sweet by the process of packing.

The Best Varieties

The Schley is Mr. Patterson's preference, especially for fancy trade, but the Stuart is a hard variety to beat when considered in a commercial way. Mr. Patterson finds that the Stuart will bear from 25 to 50 per cent more than the Schley, which more than takes care of the difference in price received for the fancier nut. Last season, he received about 75 cents per pound for his Schleys and 50 cents for the Stuarts.

He found that the older trees, that is those about 15 years old, paid a net dividend of from \$75.00 to \$100.00 per acre. These were the groves originally sold by the company for \$200.00 and \$250.00 per acre.

Mr. Patterson finds a marked difference in those groves where the soil was kept in a good state of fertility before the trees were planted over places where a rundown system of cotton farming had been practiced. He states that the best trees in the association holdings are those in easy hauling distances of the old barn lots of cotton plantation days. Just below Dewitt, Ga., the association owns 900 acres of groves, 250 acres of which are on land given very little fertilization or any other care before the groves were planted. At present the trees on this 900 acre tract are eight years old, and the ones on the 250 acre tract are at least two years behind the others.

(Continued on page 13)



A Fine Georgia Pecan Grove

Fighting the Borer in the Prune Tree

By Robert E. Shinn

OVER in the Pacific Northwest, the peach tree borer is one of our worst pests to be found in the prune orchards. With our thousands and thousands of acres of orchards, and an ever increasing acreage, this insect becomes a greater and greater problem and is a source of continual expense to every orchardist.

In our two hundred acres of prunes at the Skyline Orchards, we determined that we would try some new method of attack. We had heard of Paradichlorobenzene for borers. It had also been suggested that owing to our climate, viz.: a dry season and a wet season, this preparation would have doubtful value with us; however, we resolved to try it.

Late in August and early in September of 1921 we had seventy-eight Italian Prune Trees and treated them with this preparation, allowing one ounce per tree. First, all weeds and clods were removed from about the base of the tree and the soil was leveled. The chemical was then distributed evenly in a narrow band around the base of the tree, the circle being kept about two inches away from the bark at all times. We then placed the pulverized soil over the crystals and banked it against the trunk, cone shaped.

Before applying the substance to fourteen of the trees, the dirt was removed to make sure that no borers were present. On the remaining sixty-four trees the application was made without disturbing the earth, in order to keep the ground as compact as possible.

Borers Killed Quickly

Our first examination was made in about three weeks. While many borers were present, they were dead and generally decomposed, and no live borers were found. The trees showed no evidence of any injury, the bark and cambium layers being bright and clear. Up to this time we had had no rain and the soil was still warm. At the time I made this examination, Mr. A. F. Mason of the New Jersey Agricultural College was present and he expressed the belief that the chemical was as deleterious to the borer here as it was proven to be in the east, in the peach orchards, the New Jersey Experiment Station having already done an extensive work in experimenting with paradichlorobenzene for peach tree borers.

We made no examination during the

winter. We wanted to be able to see if there was any effect from this chemical on the plant tissues when they were left undisturbed.

Withstands the Rains

We did, however, make a preliminary investigation the latter part of last April. At this time Professor A. L. Lovett of the Department of Entomology of the Oregon Experiment Station, was present, and we could find no injury. While no crystals were present, still the gas about the base of the tree was very strong, being easily detected several feet away from the tree, after the dirt had been removed. It was interesting to note that this condition existed after eight months of rain and winter weather and while the soil was still moist and cool.

We made a final check on May 26th, on the entire seventy-eight trees. Forty-six showed evidence of borer infection during the fall of 1921 but were entirely free at this time of any borers. Twenty-four of the trees gave evidence of not being infested in the fall when the trees were treated—while only eight trees contained any

live borers. One tree still held a large amount of strong gas about its base and contained the largest borer found. Another tree which was still surrounded by strong gas at the base, had newly hatched borers working in one of the old burrows. At this date the soil temperature was 53 degrees.

Of the seventy-eight trees treated, only four showed a slight injury. The trees surrounding those on which this experiment had been made were carefully examined and found to contain an ample supply of healthy borers.

Borers Hatch Easily

An interesting point which came to light in our investigations last May was the presence of numerous young borers just freshly hatched, to borers ½ of an inch long at work in the bark. I had previously been taught that this spring brood did not hatch until July.

In conclusion, we might say that while this experiment was not entirely conclusive, still it does indicate that Paradichlorobenzene should be an important factor in the eradication of the prune tree borer.

While we are going to experiment further still we advise following directions carefully and not to apply to trees younger than four years of age.

What Shall the Harvest Be?

By Hubert duBois

WE HAVE delayed giving our readers this year a report on crop conditions as there has been considerable uncertainty owing to frosts in April, coupled with the fact that in some districts they have had a very late spring. It is also not possible to give an accurate idea of the crop until after the so-called "June drop"—and even at this writing there may be slight changes in crop estimates within the next thirty days. We have drawn freely on a great many sources of information—the Department of Agriculture, the various state experiment stations and agricultural colleges, state boards of agriculture, fruit growers, etc. It must be borne in mind in reporting government figures, however, that they do not segregate the commercial crop from the total crop, and their figures really include the total crop.

New England Group

According to government figures, Maine shows 75 per cent of a crop this year as compared with 98 per cent last year. Vermont shows 98 per cent this year as compared to 80 per cent last year. Massachusetts shows 85 per cent this year as compared with 58 per cent last year. Rhode Island shows 60 per cent, the same as last season's crop, while Connecticut has increased from 65 per cent last year to 85 per cent this year. The Baldwin bloom throughout New England is rather light and the McIntosh crop shows a spotted condition. Other than that, however, varieties have set fairly well and a good crop is in prospect.

North Atlantic Group

The states of New York, Pennsylvania, New Jersey, Delaware, and Maryland are large producers of fruit and the total yields from these states have much to do with the total crop of the country. Government reports show New York to have 89 per cent of a crop this year as compared with 48 per cent a year ago. Baldwins all showed a light bloom but a fairly good set of what bloom did occur. Greenings bloomed very heavily but did not set proportionately, as well as the Baldwin. Russets show a light set—and such varieties as King, Spy, Ben Davis, Duchess, Wealthy and Twenty Ounce show a full crop. There is a material increase in the crop of pears as compared with the crop of a year ago and there are nearly two and one-half million bushels in sight, compared with one and one-half million bushels last year. The peach crop of New York is very good, being rated at nearly 90 per cent as compared to 57 per cent a year ago and government figures show New York as having close to two and one-half million bushels this year.

Grapes were injured somewhat by frost, some districts reporting the injury will average about 25 per cent—others more—but in all probability there will be about a 60 per cent grape crop in the state. Cherries in some sections show a little damage but a very fair crop. Pennsylvania shows some damage in the low lands and government figures indicate a 66 per cent crop this year as compared with 24 per cent last year. The latest figures we can gather would indicate about 50 per cent of an apple crop now in sight, while peaches show 60 per cent and pears about 55 per cent. This will mean a heavy tonnage of fruit for the state.

New Jersey reports from the government indicates 75 per cent of an apple crop as compared with 35 per cent a year ago; however, there has been quite a heavy drop of some varieties since the blooming period, the varieties which dropped the worst being Nero, Star, Delicious and Smokehouse. According to present indications there will be 65 per cent of a peach crop as compared to only 5 per cent a year ago, and 50 per cent of a pear crop as compared to 18 per cent a year ago.

Maryland shows some damage from the April frosts. The peach crop is

very spotted but still there is 42 per cent of a full crop as compared to 16 per cent a year ago. The east shore is reported as having a good crop. The apple crop is reported by the government as being 45 per cent as compared to 16 per cent a year ago.

Delaware has a very good peach crop in sight—70 per cent as compared to only 2 per cent a year ago, and 65 per cent of an apple crop as compared to 16 per cent a year ago. Most orchards in the state show a fair crop but very few show a full crop. In all probability, Delaware will this year ship more apples than ever before in its history.

South Atlantic Group

Government figures for Virginia show a crop of about eight million bushels of apples or 41 per cent of the crop, compared to only 7 per cent a year ago. The frosts of April did considerable damage to the low land orchards but the upland and hill orchards escaped with good crops. The Albemarle Pippin shows a crop as low as 15 per cent in the Mt. Jackson district, to as high as 80 per cent in the So. Piedmont section. Winesap in the Winchester district show a crop as low as 8 per cent but in No. Piedmont a crop as high as 80 per cent. The York Imperial range from about 30 per cent to as high as 75 per cent, with probably 50 per cent a good average. Ben Davis will range from 15 per cent to 60 per cent in different sections of the state. Varieties which will be light are Ben Davis, Stayman, Grimes, Black Twig and Winesap. The famous Piedmont district shows a very good crop of Albemarle Pippins. At this time there are 750,000 bushels of peaches in sight in Virginia, or about 56 per cent of the crop, as compared to only 7 per cent a year ago.

West Virginia has shown about 36 per cent of the crop as compared to only 9 per cent last year, while peaches will produce about 40 per cent of the crop—last year being nearly a failure and producing only 5 per cent of the crop.

North Carolina came through in fine shape and will have some four or five million bushels of apples, reporting 74 per cent of a crop as compared to only 20 per cent a year ago, while peaches are unusually good, showing 90 per cent as compared to 40 per cent a year ago. Crops are likewise very good in South Carolina, having a 66 per cent apple crop and 77 per cent peach crop.

Georgia shows a material increase in apples as compared to last year—the government figures indicating 70 per cent as compared to 52 per cent a year ago. Peaches will be somewhat lighter, the government figures indicating 68 per cent as compared to 70 per cent a year ago. The figures, however, furnished by the American Fruit and Vegetable Shippers would indicate that there will be 7344 cars of peaches in Georgia this year, or 30 per cent less than a year ago.

The Lake Group

The fruit crop in Ohio is a little spotted, being somewhat light in the central sections but good in the rest of the state. Most of the rolling hill land orchards have good crops. The government report indicates about 58 per cent as compared to about 33 per cent a year ago. This would mean nearly eight million bushels of apples for the state. On the whole, there is a mighty good crop of peaches, being 60 per cent in sight.

Indiana government reports indicate 74 per cent of the crop, whereas there was only 25 per cent last year. According to reports issued by the Horticultural Society the northern district will show 40 per cent of an apple crop—45 per cent of the peach crop and a 75 per cent cherry, plum and pear crop, while the central section will show 33½ per cent apples—73 per cent peaches—39 per cent cherries and

70 per cent plums. The southern district will have 58 per cent apples, 90 per cent peaches and 50 per cent cherries, and 80 per cent plums.

Illinois shows a very good crop in the southern part of the state; however, the Winesaps will be light—Jonathans set very well and peaches are fine. There is now about 90 per cent of a peach crop in sight and the government figures would indicate about 80 per cent of an apple crop as compared to very light crops a year ago.

Michigan being a Baldwin state, has suffered some. The Baldwin bloom was light. The latest figures we could gather, however, show 60 per cent of an apple crop which is very good, and would indicate they would have ten million bushels of apples. Government figures show the crop this year to be as high as 80 per cent. Probably the cherry crop will average 50 per cent. The pear and peach crops are very good. Canneries all over the state are practically going to run full blast and it will be a very heavy pack, no doubt.

South Central Group

The early figures issued by the government for Missouri would indicate 80 per cent this year as compared to only 8 per cent last year; however, one or two varieties are rather light—especially the Ben Davis and the Gano. The peach crop is very good, indications now pointing to 90 per cent. The strawberry crop is unusually heavy—raspberries are light at this writing and there is a very fine prospect for a heavy blackberry crop. Grapes and plums are bearing well.

Arkansas suffered some as an after effect of the frosts of a year ago. It still has a 50 per cent apple crop in sight and there is an extremely heavy bloom. Ben Davis and Gano varieties have shed pretty heavily. The peach crop is reported as being 80 per cent, being double that of a year ago. Government figures would indicate that Kansas has at least 75 per cent of an apple crop and 88 per cent peach crop. There is considerable disappointment, however, in the Arkansas Valley, as the Winesaps which bloomed extremely heavy have had a very severe drop. The Jonathan and Grimes crop in the northeastern part of the state are very good and the Ben Davis will also show a fair set. Probably there will be, on the whole, about 50 per cent of a commercial crop in the state, which will mean a very good yield.

Nebraska reports 90 per cent of an apple crop as compared to only 15 per cent a year ago. The crop is much better than usual—the only varieties not having heavy crops being the Ben Davis and Gano.

Oklahoma reports 80 per cent of a peach crop which will mean over two million bushels—while Texas has a crop of about 37 per cent. It was thought at one time that the Texas crop would be unusually heavy but there has been a severe drop, following frosts.

Prairie States

Wisconsin, Iowa and Minnesota have a crop of apples ranging from 80 per cent to 90 per cent—and the cherry outlook in Wisconsin is very fine; in fact Sturgeon Bay reports the biggest cherry crop in its history—probably one-fourth more than ever before—and there should be 425,000 cases.

Rocky Mountain States

Colorado reports a bumper crop of apples, the latest figures of the government being 94 per cent as compared to 55 per cent a year ago. This means practically a full crop or close to four million boxes—while peaches in that state will average as high as 99 per cent.

Utah reports a splendid crop of apples this year of most varieties, Jonathan seeming to be the lightest. There was a very heavy bloom of this variety but for some reason it was followed

by a heavy drop. Probably there is 80 per cent of an apple crop in the state.

The Pacific Northwest

The states of Oregon, Washington and Idaho will come back with another fine apple crop. Early reports would indicate that the shipment of 44,000 cars a year ago would be exceeded; however, owing to a light set of Winesaps the yield will be somewhat less than a year ago. Probably from 36,000 to 37,000 cars will not be far from a fair estimate of the present prospects. Hood River, Spokane and Okanogan report greater crops than a year ago. Wenatchee will have about 12,000 cars, and Yakima about 10,000 cars. The state of Washington is figuring on shipping about 28,000 cars of apples, 3500 cars of pears and about 2000 cars of peaches. Cherries throughout the northwest are light and they are in great demand. The prune crop on the whole is good and will probably run somewhere around fifty to sixty million pounds, on a dried basis. The Bartlett pear crop is very good but fall pears such as the Anjou are very light.

California will ship the largest deciduous crop in its history. Some estimates indicate that the increase will be from 40,000 cars shipped a year ago to as high as 55,000 cars this year. It is interesting to note that one railroad operating from the Pacific coast is figuring this year on handling 158,000 cars of fruit as compared with 110,000 cars a year ago. The big increased production from California comes from a new tonnage of wine grapes. Apples show a material increase and according to the report of the State Board of Agriculture, there will be 83 per cent of a crop compared with 58 per cent last year. Sonoma has a big crop of Gravensteins and Watsonville has a bigger crop of Newtowns than Bellflowers. Yucaipa reports some frost damage which will mean a crop about equal to that of last year. The apricot crop of the state is 55 per cent as compared to 45 per cent a year ago, while cherries are 70 per cent which is practically a normal crop as the average in that state is about 76 per cent. Peaches are very heavy in California this year, being 98 per cent as compared to 73 per cent last year. The crop of Clings for canning is much better than normal and the dried peach district around Fresno reports a full crop. Pears had a very heavy drop but there is in sight at this time 80 per cent of the crop as compared with 61 per cent last year. There will be 90,000 tons of pears in the state, according to present indications. The plum outlook is somewhat spotted but is about 78 per cent as compared to 70 per cent a year ago. The prune crop will not be far from that of last year, being slightly greater—76 per cent this year as compared to 69 per cent a year ago. It is about an average crop as ten year figures indicate 78 per cent as being normal.

Canadian Crop

In Ontario, which is a very heavy apple producing section, the early varieties have a very heavy crop. McIntosh and Snow are heavy, while the Baldwins, Greenings and Spy are light. There are three times as many peaches as a year ago, while plums figure 50 per cent of a crop and pears 75 per cent—the Kiefer being a very full crop. There will be at least 40 per cent of a sour cherry crop and 30 per cent of a sweet cherry crop.

Nova Scotia reports a crop of about 75 per cent of that of a year ago which was very heavy.

The crop in British Columbia is probably 15 per cent or 20 per cent under that of a year ago, which was a bumper crop; however, McIntosh and Jonathan are very heavy, while Wagner and Wealthy are light. Peaches and plums are heavier than a year ago while pears and cherries will be about 10 per cent less. Apricots will yield heavier and on the whole,

(Continued on page 9)



SAMUEL ADAMS



C. I. LEWIS

Editorial Problems of the Day

The Refrigerator Car

EVEN though the refrigerator car is not very efficient, still it is a great boon to the fruit grower. Up to this past year there were some hundred thousand refrigerator cars in this country and this season there are some fourteen thousand additional cars being built. During the past decade the changes in the car have been minor and very little progress has been made in the construction. Some of the cars have been made heavier, the insulation has been somewhat stronger, false floors have been utilized and it has been found that salt can be used in connection with the icing at times to advantage, but relatively little progress has been made in a better study of the factors which will make the car more efficient. These are temperature, air circulation and proper humidity content.

When a car of berries arrives at market moldy, it is a pretty good indication of wrong conditions inside, and when vegetables arrive in a yellow condition it is also an indication that there are faulty methods employed. In all probability, the ventilation is not what it might be. It is gratifying to know that there are some parties at work on this problem in the country at the present time and that we can look for some progress. Possibly we will never get the proper efficiency out of the refrigerator car until it is handled from one source—the same way our Pullman car service is handled in this country today. This would probably give an equitable distribution and would tend to develop a policy which would give us sufficient cars.

Co-op. With Railroads

WHILE the freight rate on fruits seems very high, it must be borne in mind that we are dealing with a perishable that it takes an expensive equipment to handle, and that one of the best ways for us to help lower the rates is to work heartily with the railroads and co-operate with them in every way. Load cars promptly when spotted. Try and avoid storing fruit in cars at points of destination. Fight paying demurrages by having your cars unloaded and turned back to the railroad promptly.

Probably, no matter how hard the railroads may try this coming year, there is almost bound to be a car shortage. With a good, generous fruit supply, the cars cannot cover all territories at the time desired.

Another way in which you can co-operate with the railroads is to be sure that your fruit is in good condition when loaded—that it is properly packed and nailed securely, and above all that the cars are strongly braced. Reduce the loss caused by breakage and we can perhaps induce the railroads to lower their rates. There is much that we can do to co-operate with the railroads in bringing about a better, more efficient service, and in time a cheaper service.

More Storage

WE HAVE been passing through several decades of heavy planting and development, and far too little atten-

tion has been given to cold storage. It would mean much to the American apple industry, for example, if most of our apples could be rushed into cold storage within seventy-two hours after harvesting. It would greatly prolong the life of the fruit and preserve its finer qualities. In building storage, however, let us take advantage of all the progress that is being made along these lines. Efficient storage means that we should maintain a temperature of about thirty-two degrees; that there is very good ventilation in the room which will remove the destructive gases; that there is proper air circulation for an even distribution of the fresh air; and last of all, but very important, that there is proper humidity in the storage room. These are the factors which mean whether or not storage is efficient or inefficient.

Much progress has been made in the past decade in the study of storage construction and the maintenance of storage houses. In building a plant, avail yourself of all this information, even though your plant is built on a small scale.

The Fruit Grower

THE fruit grower has one of the most dignified occupations. He is combining labor on the one hand, with science and art on the other. There are times when fruit growing becomes more or less discouraging, the fight against the elements—the uncertainty of frosts and storms on the one hand, and the continual fight against pests on the other, are trying. Nevertheless these are the things that make men.

Fruit growing has many enjoyable phases. What is more beautiful than a fruit orchard from the time it blooms until the harvest? Even in winter many of the trees are beautiful in their form and coloring of their bark. The fruit grower also has the satisfaction of knowing that he is doing something worth while; he is producing food—delightfully healthful food—and he is growing something that will contribute to the general health of the nation, something that will be a delight to the little child and a comfort to the invalid. After all, these are the things that help make life worth while.

Advertising Fruit

ADVERTISING is salesmanship and if you believe in salesmanship you must believe in advertising. Don't make the mistake of thinking that if you are not in a position to spend hundreds of thousands of dollars or millions, as is true with some of our brothers on the Pacific coast, that there is nothing in advertising. You will find that even on a small scale, advertising will pay big dividends. It may mean nothing more than the putting up of attractive placards along the turn of the road, announcing that you have a booth near by well supplied with fresh fruit. It may mean the sending out of postal cards to your friends in a near-by city, announcing the ripening period of certain varieties. It may be an advertising campaign in your local paper. Even though it be small, it almost invariably will bring you results, provided you have the proper

grade and pack, that you put the fruit up clean, in a neat package, and that you have quality.

Advertising is just as valuable to the fruit grower as it is to the merchant in the big city. It is no longer a question as to whether advertising will pay—it is simply a question as to the best methods of advertising.

In Summer Time

OFTEN a fruit grower practices very good spring management of his orchard; he tills thoroughly, puts on early sprays and checks the diseases and insect pests, but too often he lets down by the beginning of summer and loses much of the benefit of his early hard work. A period of drought comes, the fruit on the tree reaches a period when it ceases to grow and begins to wither. The leaves indicate distress. How much better it would have been to have tilled that orchard a little more and kept up the moisture supply, or to have given it another thorough irrigation. In irrigated sections, August irrigations will prove a good investment by keeping the fruit growing, strengthening the buds and relieving the strain on the tree. Where trees suffer too much for want of moisture the leaves will begin to suck the juice away from the apples, causing them to become corky and to develop certain physiological break-downs. Stone fruits will become dry and develop pockets, or have an interior browning—generally all because of a lack of proper moisture. Sun burning of the fruit becomes severe—another indication of distress. Pears may actually wither right on the tree for want of moisture.

Fungus diseases should be watched very carefully in the summer time and if scab, blotch, bitter rot or mildew start to develop, they should be checked at once. If the cover sprays are neglected the codling moth will get in its deadly work.

Summer should be a period of great activity in the orchard. It is the best time for the owner also to study his trees, to get a good line on the pruning he will follow next winter. When the trees are in heavy foliage he has a better opportunity to study their real vitality and formulate a good plan of orchard management, than if he waits until winter when there is nothing but the bare, dormant trees upon which to gauge his ideas.

Grow Good Fruit

STRIVE in every way to grow good fruit. We never seem to have too much really good fruit. It is the poor fruit, the cull, that is a drug on the market. Strive in every way to get size, to get color and to get freedom from blemishes. Such fruit largely sells itself. It is a good investment to the purchaser and to the seller. It induces the purchaser to repeat his order and it tends to increase the consumption of fruit.

It should be a source of pride to every fruit grower in our land to strive to grow quality fruit. In the long run quality will win out.



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Orchard Problems and their Solution

by Paul C. Stark
Associate Editor

Plum Varieties for Illinois

I am going to plant 500 plum trees on high, light ground and want your advice as to varieties. I prefer a large, blue plum that will ripen in September in central Illinois. The common Damson does well here, but is small. Is the Shropshire Damson much larger than the common Damson and will it do well on most all soils? How about the German Prune, Italian Prune, Black Beauty, Wickson and Burbank? Shipper's Pride? I want to plant nothing but what has been tested and proven to be a good commercial variety.

Will the Grimes Golden and Winter Banana apple do well on high, light ground?—V. S., Illinois.

SOME of the varieties that you mention will do well in your section, but from a profit standpoint, I would advise you to change the list somewhat. Believe you will get better results and have less trouble from the brown rot by planting some of the Japanese or hybrid-Japanese varieties. I would advise you to plant the following list of plums in your section: America, Shropshire Damson, Abundance, Red June, Early Gold. You might try a few Shipper's Pride and German Prune. The Burbank is a good Japanese variety, but it rots badly. Everything considered, I believe you will get better results from planting the America than any other variety you can mention. It is hardy, a heavy bearer and very slow to rot. Mr. Edwin Riehl of Alton, Illinois, says that the America is the best money-maker and most satisfactory plum he has ever tested. Mr. Benjamin Douglas, well known horticultural authority of Indiana, gives the highest praise to the America. There are splendid opportunities in growing high grade plums.

You can plant Grimes Golden or Winter Banana apples, but if you plant Grimes Golden, be sure to have them on double-worked stock, otherwise they will die of collar-rot just at the time they are in their prime.

For Pennsylvania

Will you please give me a list of summer, fall and winter apples for Pennsylvania—also a list of commercial grapes that would do best in that section?—Mrs. L. A., Ill.

I WOULD suggest the following varieties for planting: Summer Apples—Liveland Raspberry, Yellow Transparent, Duchess. Fall Apples—Wealthy. Winter Apples—Stayman, Delicious, Rome Beauty, King David. The Golden Delicious is a long keeping yellow apple that I consider the best of its type and although it has been introduced relatively a few years, it has made an unusual record for early and heavy bearing and wide adaptation, having fruited successfully in practically every section of the country. I have planted it heavily in my own orchard. For grapes I would suggest the following varieties: Concord, Moore's Early, Campbell Early, Niagara.

Hudson Valley Varieties

WE PLAN to plant a twenty-acre orchard in the spring and we would very much like to have you criticize our plan and offer any suggestions. The field is located on a hillside exposed to the south and east. The soil, typical of these Hudson Valley hills is a stony, shallow, light loam. Adjacent to this field is an orchard producing good Gravenstein, Astrachan, Baldwin, Greening and Jonathan apples. We want this block to be principally McIntosh, with every third or fourth row a pollinizer. Would the Delicious be a satisfactory variety for this purpose? With the standard trees set forty feet apart on the triangular plan, could we profitably use apple trees as fillers? We planned to use Wealthy and Yellow Transparent. Would you recommend these or suggest others? Would we derive any benefit from blasting the trees holes before planting in the spring?—A. J. S., New York.

THE question of exposure used to be considered much more important than it is at this time. If there is any difference in exposure, I prefer an east or north exposure. I consider location, soil, convenience, etc., far more important than exposure. I have seen just as good orchards on southern as on northern and eastern exposures. I am familiar with the type of soil in the Hudson Valley, New York, and I consider it about as good a fruit section as any part of the United States. You are close to a good market, you get good color, good quality and good crops. I am glad to see that you are planting for better quality and the more profitable varieties. McIntosh is a splendid apple, good producer, sells well and is hardy. The same is true of Delicious. I have talked with a number of Hudson Valley growers and have seen the Delicious and McIntosh that they have produced. When the Baldwins and Greenings were flooding the market and were bringing only a moderate price, McIntosh and Delicious were bringing double the prices and making far more profit. McIntosh and Delicious will be all right from a pollination standpoint, as Delicious is recognized as one of the strongest pollen producers. I believe in the filler system, but do not let the fillers stay in until they crowd your permanent trees and injure them. If you follow this method, you can use an apple filler. In my own orchard of 160 acres, I have planted early-bearing apple fillers in the entire orchard. Yellow Transparent would be a very good filler. Dynamiting is a good practice in soils where there is a hard pan, it helps to break up the soil and allows the roots to grow deeper, but in many soils, it is not necessary. Do not dynamite when the soil is at all wet. The best time is in the early fall when the soil is thoroughly dry, as you can pulverize it better then. You have the Jonathan growing in a neighboring orchard and for the Hudson Valley section, you might well consider this variety.

Identifying Scale

How can you tell if there is San Jose scale on apple trees? I looked my trees over, but can't find any scales.—A. S., New Jersey.

SAN JOSE scale is a small, circular, grayish colored scale insect, about the size of a pin head. It is hard to find these scales, unless you are thoroughly familiar with them. In case you find small, grayish spots on the trees, try to scrape them off with a knife, and if you find a small yellow insect under the scale, you will be sure that your trees are infested with scale. This insect can be controlled by spraying with a 1 to 8 solution of lime sulphur applied late in the fall or early spring, before the buds begin swelling. Scalecide is also very good for control of scale.

Arkansas Orchards

How is the soil and climate in Boone County, Ark., adapted to general fruit growing? Or is Benton or Washington County better? My plans are to plant about 1000 trees this year, mostly apples. To whom must I apply for the "bulletins" etc.?—E. L. R., Montana.

BENTON and Washington counties are in the northwestern part of Arkansas and are particularly adapted to fruit growing. The writer has charge of an orchard in Washington County, Ark., and considers it one of the best fruit sections. We recently planted another orchard there. The land is not particularly adapted to grain farming but it is ideal fruit land. I am not so familiar with Boone County, but I consider Arkansas a good coming section from a fruit standpoint.

What Shall the Harvest Be?

(Continued from page 6)

the crop of the Province is very promising.

Quebec shows about half again as many apples as a year ago, and Wealthy and McIntosh show a medium crop.

Resume of Crop

There is a very large increase in the apple crop this year as compared with a year ago. Government figures would indicate the increase is from 96,000,000 bushels to 179,000,000 bushels. With the northwest having nearly as good a crop as a year ago, with an increase in California and the Rocky Mountain districts, with a very large increase throughout the southwest, middle west, lake districts and the Atlantic seaboard, the crop will probably be all the way from half again as much of an increase to nearly double that of a year ago. It is gratifying to know there are practically no states having a failure and it must be remembered that crops from 50 per cent to 80 per cent are always very good.

It is interesting to note that there is a good to heavy crop of summer, fall and early winter apples—such varieties as Gravensteins, Duchess, Wealthy, Twenty Ounce, King, Jonathan and Spitzenbergs—but that in contrast to this there is a poor to light crop of the late keeping varieties such as Rome, Winesap, Baldwin, Gano, Ben Davis, Newtown and Albar-Marie Pippin. Pears show about half as many again as a year ago while the peach crop is practically double.

The sour cherry crop shows a tremendous increase over a year ago when many states suffered a failure, while the sweet cherry crop is probably fair. The outlook for the canneries is very bright as reports indicate that the canneries are running in every section of the country and that they will put up a full pack.

There will be a normal crop of raisins and the dried prune situation is very good indeed. Present indications are that California will have a few million pounds more than last year—possibly 210,000,000 pounds as compared to 200,000,000 a year ago. The Pacific Northwest will show an increase from 15,000,000 pounds to probably 50,000,000 or 60,000,000 pounds of prunes. The foreign crop, however, is very light. Probably France and Bosnia and Serbia together will not produce over 60,000,000 or 70,000,000 pounds. There will be no carry-over stocks, so that there will be only a little better than 300,000,000 pounds offered to the trade this year compared to 400,000,000 pounds a year ago.

All in all we can say that the fruit crop of America this year is a normal one and will compare favorably on a five or ten year average. The increased acreage coming into bearing in many sections, however, will mean largely an increased tonnage and it would be one of the most prosperous years for the American fruit growers in a decade, with stocks well cleaned out and with an indication of a very high quality, as growers in all sections are reported as following good tillage and spraying practices. The fruit growers of America should have more money to jingle in their pockets this fall than has occurred in many years.

Where Did Our Fruits Originate?

The peach came originally from China; the cherry from the region around the Caspian Sea; the pear is a native of temperate Europe and western Asia; and the plum comes to us from the Caucasus and Turkey; the quince comes from the Caucasus and the Caspian region of southeastern Europe, while our own strawberry is a cross between the wild strawberry of the Pacific coast known as the Chile and the Virginia. The raspberry is supposed to be a native of temperate Europe and Asia.



Closed Car Comforts For All Seasons

No previous closed car standard prepares you for the quality you find in the Essex Coach.

That is what gives such emphasis to its low price. Buyers accustomed to pay far more for like advantages, must see the Coach to gain a fair conception of what is offered.

And These Values are Lasting

The Coach gives all the utility, protection and comforts of the closed car. By quantity production the essential closed car advantages are made possible at this price.

And remember you get these closed car qualities on the famous Essex chassis, which holds more distinguished contest and service records

than any light car in the world.

The Coach stays in condition. It has the lively performance of an open car, and its riding ease makes light of country travel. All season protection, reliability, and a large carrying capacity in the rear locker make it ideal for country service.

See This Important Money-Saving

It gives hundreds the closed car they want at from \$500 to \$1000 less than they expected to pay.

And those who planned to get an open car, find the Coach fills their wants more completely, and at even less cost than any open car of comparable quality. You should see the Coach, too. It may be the very car you want.

Touring, \$1095

Cabriolet, \$1295

Coach, \$1345

Sedan, \$1595

Freight and Tax Extra

Essex Motors, Detroit, Michigan

In the Berry Fields in Summer

(Continued from page 4)

from weak plants and it is only by good care that strong and vigorous plants can be produced.

Logan Berries

The harvesting of the Logan berry is generally completed by August 1st and pruning should follow immediately, all old canes being removed. It is wise at this time also to take out any plant that seems to be very weak and diseased. The greatest menace to the Logan berry is Anthracnose, and one of the best ways to control this is to cut out as soon as possible, after harvesting. A good lime sulphur spray in the winter, together with early pruning should control this disease.

Berry growers are finding it pays to run cover crops in the Logan berry patch and these are preferably drilled in by late August or early September and plowed under in the spring.

Many of the raspberry and blackberry growers also find it to advantage to keep the ground supplied with nitrogen and organic matter through the use of leguminous cover crops. This, supplemented by the use of commercial fertilizers in the spring of the year, will result in plants of better vigor and give a heavier production of fruits of fine quality. There seemingly is a wonderful future in this country in the growing of cane fruits. The market practically never seems to get too many red raspberries, black caps or blackberries. With a little care and systematic control of disease, there is no reason why the industry should not thrive.

Timely Spraying Pays Big Dividends

Spraying and dusting are insurance against disease. The careful orchardist will always follow a program of control, whether he sees the disease present or not. This is really half the battle. It is very easy to eradicate a disease when it first starts but after it becomes very bad, of course it has done its damage and only partial relief can be secured.

In controlling insects, they should be attacked when they first appear, although a bad attack of insects of any kind should always be followed by the correct treatment. Do not allow diseases and insects to devitalize your trees so as to reduce their bearing and reduce your profits. While control of pests may seem expensive it pays big dividends.

This Valuable Book FREE!

This valuable, interest-compelling book will be sent absolutely without charge or obligation on your part.

It tells, in plain language, how fruit and vegetable growers can increase their profits. Tells how to dispose of goods in a market that consumes 8,445,200,000 lbs. of food stuffs annually. Explains selling methods employed by most of the large shippers. Tells how some concerns increased sales 200% or more. Points out how to receive the full market price for your fruits and vegetables. Explains how to get your money within twenty-four hours after sale. Tells how to eliminate rejected cars, etc.

More Dollars for Fruit Growers

is the title of this interesting book. It is a veritable encyclopedia on the subject of selling farm products. No matter whether you are a grower, a shipper, a receiver or a dealer, you will find this as instructive as a text book.

Our only reason for sending this book without charge is because it also tells why public sale is the best method of disposing of your goods.

This edition is limited. So write us at once if you wish a copy. Or simply mail the coupon.

The Fruit Auction Co.

Established 1896

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Put in one mail today
Without obligating me in any way, kindly send, free of charge, a copy
of your book "More Dollars for Fruit Growers".

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Charles A. Green's Walks and Talks With Readers

The Lilac

THE most popular and best known ornamental shrub is the lilac. On May 17th I made an extensive ride through the country bordering on the suburbs of Rochester, N. Y. Almost every farm or village home that I passed had planted upon it a lilac. Some of these rural lilacs were almost as large as a good sized tree. Some were of fantastic form, but the majority of them were grown in the form of shrubs. We thought finally we had come to a place where there was no lilac, but as we turned the corner we found two lilacs on this farm home.

One reason why the lilac is popular is that it is not preyed upon by any injurious insect. Then again it is perfectly hardy. I never knew it to be winter killed or even injured by the most severe winter. As indicated by the tree-like growth of some of these lilacs, it is a long-lived shrub. Many of those I saw must have been fifty or more years old.

The fragrance of the lilac is peculiarly attractive and reminds one of events occurring many years ago. There is something about the scent of flowers that reminds one vividly of the past and such is the case with the lilac. I cannot see that the newer varieties of lilac, most of which come from France, are superior to the older plants.

WE MUCH appreciate your articles and work on the Fruit Grower, especially the Question and Answer Department, which gives needed information to amateurs like me.

Will you kindly tell me if Raspberries (Black Cap or Red) to be set out this fall, will yield a fair crop next spring?

Am thinking of putting out two or three thousand plants.

C. A. GREEN'S Reply: No, I could not report that red or black cap raspberries planted this fall would yield a full crop next summer. Much would depend upon the vigor and character of the plants. If the plants were of large size and had many vigorous roots and received good cultivation in fertile soil they might yield much fruit, but even then I would not dare state that they would ever bear a full crop the succeeding spring or summer. I thank you for your encouraging words.

Looking Forward

MANY people feel they have but little or nothing to look forward to in the way of enjoyment. Such people may well ask "What am I living for?" The answer may be "I am living to make other people happy."

How often we hear of people who have leaped into the river or the lake or who have in other ways destroyed their own lives, owing to the fact that there was but little they could look forward to with pleasure.

For me the ripening of the fruits of the earth is a pleasure to look forward to. In this respect the fruit grower is more fortunate than many other people. First, he can look forward to the coming of the strawberries. Then come the raspberries, the blackberries, the currants, grapes, peaches, plums, cherries, apples, one following closely after another, thus rounding out the year of anticipation. As winter approaches the fruit grower stores away for winter consumption apples, pears and such other fruits as have an inclination for long keeping. In this way there is an entire year of expectation.

The individual who can pick up from his sideboard or from the barrel in his cellar beautiful specimens of apples does not fully appreciate this blessing. It is only when he is deprived of these

things as he would be on a trip to arctic regions, or as he would be if through some ailment the doctor should proscribe fruit as an article of food. I know of a man, a great lover of fruits, whose doctor tells him he can eat no more apples. This is surprising since apples have been considered among the most wholesome fruits, but there is sugar in apple juice, therefore apples must be denied in certain diseases. It may be a serious thing to be deprived of apples for a day or a week or a month, but to be deprived of them for a life is a bitter penalty.

Strawberries Popular

ON MAY 8th 1200 crates of strawberries came into New York city from South Carolina. During the week the receipts were 140 carloads of strawberries selling at fifteen cents per quart wholesale. Those received a week earlier secured a much higher price. This indicates the value of the strawberry crop in one city market and does not touch upon the strawberries going into Buffalo, Philadelphia, Baltimore, and other important cities. It might be roughly estimated that one day's shipment of strawberries from the southern or middle southern states going into the north is over 300 carloads per week. This would be a very modest estimate, possibly twice this quantity is shipped. These southern strawberries come to Rochester, N. Y., before the Rochester strawberries are in full bloom. This gives Rochester a long season of this delicious fruit. We can get a fairly good supply of strawberries at Rochester, N. Y., for a month or more.

I call the strawberry the poetry of fruits, but all fruits are poetic, as is their cultivation. I know of no fruit more readily sold than strawberries, and they bring in the money in early spring when money is scarce. If I were a poor man I would not hesitate to plant a bed of strawberries on my home lot for sale and for my own family's eating.

Digs Up \$4,000

A FARMER near Rochester, N. Y., has dug up on his farm with a spade nearly four thousand dollars' worth of silver bricks or bars. There is no doubt about this man's having discovered this silver. If nobody claims the silver he is entitled to it. But what of this four thousand dollars' worth of silver? I know a man who has made such use of his land that it brings him in from five to ten thousand dollars a day. This man digs the ground and discovers what is equal to gold dollars and makes what would seem to be great profits.

You ask what is this crop that yields this man two hundred thousand dollars gross a year or more? The crop I allude to is one that farmers do not cultivate and will not cultivate and cannot cultivate, because they do not know how and have no knowledge of the secrets, as they may be called, of the traffic. But bear in mind that a farm made up of good rich land is a valuable asset. The trouble with most farmers is they are all doing the same thing. You can never make ten thousand dollars a day by growing the same things that your neighbors are growing and that some one is doing all over the world. I would tell you what this crop is if I could thereby do you any good, but it would not do you further than it might give you suggestion to do something out of the ordinary. Grow some crop that others are not growing.

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Removes Dandruff—Stops Hair Falling
Restores Color and
Beauty to Gray and Faded Hair
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Much News in Little Space

The Great Plains Horticultural meeting is to be held at Ames, Iowa, August 15th to 18th. This is an organization of specialists engaged in horticultural science, who meet annually to discuss problems of common interest. This year the Iowa Horticultural Society is going to hold their summer meeting with the Great Plains horticulturists, and fruit growers and horticulturists are invited to attend this meeting.

Fruit breeding work will receive special attention at the conference. They have at the present time over 40,000 seedlings at Ames and at the State Breeding Farm at Charles City. Several thousand of these have already fruited.

According to government figures, this country produced 525,000,000 dollars worth of fruit and fruit products in 1921. This is about two and one-quarter million less than the estimated value of these products in 1919 and over 200,000,000 less than the estimated value in 1920. The decline was due to two factors—a light fruit crop on the one hand and relatively reduced prices for some products on the other.

The New York Central Lines have just completed a very large modern refrigeration and ice manufacturing plant at East Buffalo. Forty cars can be iced at one time. Five hundred tons of ice can be manufactured daily and 20,000 tons stored.

A new corporation known as the Yakima Shippers was recently formed at North Yakima, Washington. The following shippers joined the new organization: B. A. Perham, H. R. Buddy, C. M. Holtzinger, Cecil H. Oliver, Charles H. Swigart, F. B. Plath, Lyman J. Bunting and C. C. Smith. Firms represented are the Perham Fruit Company, Duddy Robinson Company, V. M. Holtzinger, E. E. Samson Company, Yakima Fruit Growers' Association, Washington Fruit & Produce Company, Hayes Brothers and Ranier Fruit Company.

The Spokane Valley Growers Union is building a \$40,000.00 apple packing plant at Opportunity. About two hundred cars of apples are handled each season at that point.

A \$10,000.00 packing plant is also being built at Green Acres, near Spokane. This house will handle one hundred cars annually.

Three large pre-cooling and cold storage stations are being built for this season's business in the Benton Harbor, Michigan, district. These will be located at Coloma, Stevensville and Sodas. Fruit passing through these buildings will be thoroughly cooled before being shipped.

The Wenatchee District of Washington is planning an extensive advertising campaign on the Wenatchee boxed apple. In addition, they will, in all probability, join a campaign with the rest of the Northwest in advertising the Northwest boxed apple.

Fruit growers on the Pacific coast estimate that their costs this year will range from 20 per cent to 25 per cent less than in 1921 owing to the reduced cost in labor and materials.

There is much interest in cherry planting around Northport, Michigan. The growers pooled their purchases this year and when pooled alone contained over 20,000 trees. Cherry growing is on the increase in almost every cherry district of the United States.

Last year an attempt was made to form an Export Apple Corporation in the Northwest; however, the matter was given up for the time being but recently the movement has been revived. A company known as the Northwest Fruit Exporters, Inc., was formed, consisting of H. F. Davison, of Hood River, J. Macphree Ferguson of Yakima and Edward Smith of Wenatchee.

The U. S. Department of Agriculture has issued bulletin No. 1025—"Studies in the Clarification of Unfermented Fruit Juices." This bulletin will interest all of our readers who are planning to manufacture unfermented apple and grape juices.



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4 Door Sedan
New Superior Model

The World's Lowest Priced High-Grade All-Year Sedan

The Ideal Family Car

\$875

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The Comfort and Weather Protection of a Limousine for Less Than the Cost of Most Open Cars

Never before has a Fisher Body Sedan of this quality been offered at a price so low. The beautiful lines, superb finish, luxurious upholstery and refined appointments that have made Fisher Bodies the standard of excellence in closed cars, are all here in full measure. Its four doors fit perfectly and cannot rattle.

The heavy plate glass windows can be instantly lowered to any desired point, or as quickly raised, and the plate glass windshields are both movable, permitting instant conversion of the Sedan into either a closed or an open car.

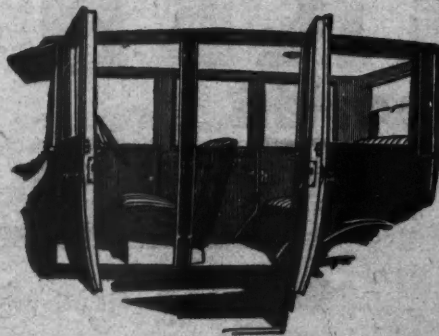
Mounted on the famous New Superior Model

Chassis, this car is fully equipped mechanically, and combines ample power and speed with steadiness and ease of handling.

No matter what car you now use, or think of buying, investigate this Sedan. Its power, speed, appearance and appointments please discriminating motorists accustomed to paying higher prices for closed cars.

Its low price and low maintenance appeal to all who find it desirable to economize.

In no other car on the market can you find this unusual combination of Style, Quality, Economy, and Year-'Round Service.



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WORKING over the roughest ground, dragging a tremendous load, a tractor is subjected to the most severe service imaginable.

And in order to prove a profitable investment to the farmer it must keep on performing satisfactorily day after day through many, many seasons with little expense for upkeep.

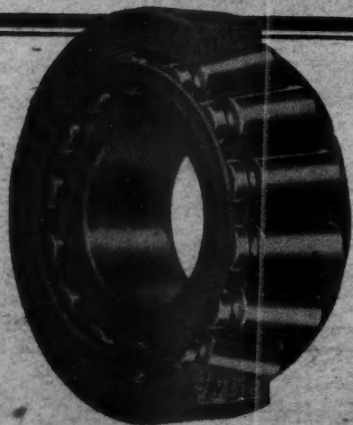
This very severity of tractor requirements is the controlling factor in the ever-increasing installation of Timken Tapered Roller Bearings by the foremost tractor manufacturers both here and abroad.

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THE favorite form of opposition of those opposed to cooperative marketing is to attack the management. Sometimes they will not come out directly and attack the officers, but do it in an indirect way by talking to some member, or a competitor will approach an independent grower and fill him full of woeful tales concerning the cooperative. This same agent will often visit banks and business men and try to shake their confidence. This form of attack must always be expected by cooperative bodies.

The second form of attack is to have some disgruntled members become angry and talk to non-members and other people concerning their own organization's business. This is always a fatal mistake and almost invariably the talker becomes sorry for his actions as he realizes they are far reaching and destructive.

The management of a cooperative body has a very difficult position to fill. Both those in and out of the organization do not realize the problems he often is called upon to face. It must be borne in mind that conditions the past two years have been very difficult—that many a manager has had to take a business which was not very well financed and which was simply in the period of organization, and if under these conditions he has weathered the storm, he is to be congratulated.

Work with your manager, cooperate with him, give him helpful suggestions—or if you have criticisms to make, go to him direct. In this way you will build up your organization and strengthen it.

ONE of the best things a cooperative body can do is to hire an attorney on a regular retainer, and have this attorney attend all meetings of the directors. He should be in a position also, at all times, to advise the management concerning the legal phases of any action which arises. The attorney should write the proceedings of the meeting, which the Secretary and Treasurer can sign. The attorney should pass on all contracts. It is a very good rule for a cooperative body to form, that no employee the organization can execute a contract of over \$50.00 unless it is first approved by the management, the attorney and the Board of Directors.

Study to keep out of the courts. A little investment in attorney fees is a lot better than getting into expensive law suits.

THE Texas Tomato Growers Exchange with headquarters at Jacksonville, Texas, now has a membership of 2500 growers. This is a cooperative, non-profit organization and is doing a big work in that field.

STRAWBERRY growers of Villa Ridge, Illinois, shipped their crop cooperatively this year and received an average net return of \$2.51 a crate on fifty-two cars. They spread their tonnage over a wide market, including Omaha, Toronto, Kansas City, Rochester and other places. Their largest competitor, an independent grower, averaged \$1.97½ per crate. Cooperation certainly paid these growers.

A NEW fruit association has recently been formed at Fairhaven, New York, to be known as the Fairhaven Co-operative Fruit Growing Association. A special organization committee has been appointed, consisting of A. E. Curtis, Irving Bacon, Hohn Forscutt, William Smith and George Simmons. New York state is rapidly coming to the front as one of the leaders in the cooperative movement.

A VERY comprehensive fruit marketing organization to cover the eastern half of the United States is now being considered by the fruit growers of Maryland, West Virginia, Virginia, Pennsylvania and New Jersey. It is the plan to organize the fruit growers into small community associations gathered around the packing house or central shipping point. The various packing houses and shipping groups will be organized together into local selling organizations or exchanges. These exchanges will probably be united into a central body called the Appalachian Co-operative Fruit Exchange and will hold membership in the Federated Fruit Growers. If this is not done, then probably each local could take out a membership with the Federated Fruit Growers.

THERE are today over fifty cooperative fruit marketing associations in the state of New York, while Michigan has over twenty. New bodies are springing up all the time, showing that cooperation is coming to the front in the east just as rapidly as it has in the past, in the west.

ACCORDING to C. W. Waid of the Ohio Farm Bureau Federation, some six local cooperative fruit marketing organizations have joined, to market apples in Ohio. "Buckeye" has been chosen as the brand name.

THE Spokane Valley Growers Union of Opportunity, Washington, is doing a very fine business. They expect to do the largest business in their history this coming season. They have assets of \$174,000.00, their liabilities being small, principally a \$25,000.00 mortgage on a building. This Union controls some 1765 acres and has 371 stockholders.

Well Known Fruit Brands

California has probably been more advertised by its fruit brand names than in any other way. Practically every housewife knows about the Sun-Kist oranges, Sun-Maid raisins, Blue Diamond walnuts and almonds, Sun-Sweet prunes and apricots and Del-monte canned goods. It is very significant that the names quoted are all handled by co-operative bodies, except the latter. The big "Co-ops" in California have carried the burden of standardizing, advertising and distributing California's products in the most effective way found in any part of the United States. It is mighty significant that in the Pacific Northwest the six best known brands to-day are all from large co-operatives, "Skookum" of the Skookum Packers Association, "Jim Hill" of the Wenatchee District Association, the "Big Y" of the Yakima Association, the "Blue Ribbon" of the Horticultural Union of Yakima, the "Blue Diamond" of the Hood River Apple Growers' Association, "Mistland" of the Oregon Growers' Co-operative Association.

These organizations will have to bear the burden of carrying the banner of progress of the Pacific Northwest, in the same way that the big "Co-ops" of California have done for that commonwealth. Some day these six big associations will realize they will have very much in common and will be drawn much closer together than they are to-day. The burden of distribution and advertising will fall upon their shoulders because of the fact that they have practically the only advertised brands from that district.

Growing Pecans at a Profit

(Continued from page 5)

He does not believe in intercropping. In the early days corn was grown for the work stock, in the rows between the trees, but even this practice has now been abandoned, the only intercropping done is the planting of leguminous crops for plowing under.

Tractors and Mules

Mechanical power is used to a large extent in the orchard work. Eleven tractors are used for breaking and harrowing. A large number of mules are kept also for such work as the tractor can not do. Picking is done by hand, the matured nuts being thrashed from the trees by long canes by 500 to 600 negro pickers. The nuts are then gathered and carried to the large warehouses. Mr. Patterson goes over his trees about five times, gathering the nuts as they ripen. They are then placed in wire bottom trays, through which a current of hot air is passed to dry them out in time for the early market.

The Fowltown Farms Company of Albany, Georgia, is also developing a peach and pecan farm in the Albany district. Two local men, Mr. A. P. Vason and Mr. J. P. Champion, are the leading spirits in this development. They own 3,500 acres and have set 175 acres to peaches and 550 acres to pecans. Their plan is to have separate groves for the two crops. Mr. Champion said that he had only gone into the game after several years of observation. He and his associates will retain 1,000 acres for their own uses and the remainder will be sold as fast as developed and planted.

Mr. W. P. Bullard, President of the National Pecan Growers Exchange, is rendering a valuable service to the small independent grower in the district. The Albany branch of the Exchange has a building in which it grades, packs and markets nuts for many of the growers.

Industry Worth Millions

Mr. John H. Mock, Secretary of the Albany Chamber of Commerce, gave me the complete history of paper shell pecan growing from the first start made by Major G. M. Bacon nearly 20 years ago, when he had a few trees budded, on down to the present time with about 70,000 acres planted in the district. On a conservative basis, Mr. Mock estimates the groves now planted to be worth from 15 to 20 million dollars. The main varieties planted are the Schley, Stuart, Alley, Van Denman and Delmas. Some of the others grown are Frother, Mobile, Success and Moore. Mr. Mock states that the crop is now in the neighborhood of one and one-half million pounds and is increasing annually, and that it is bringing in from one-half to three-fourths of a million dollars to the district as a whole.

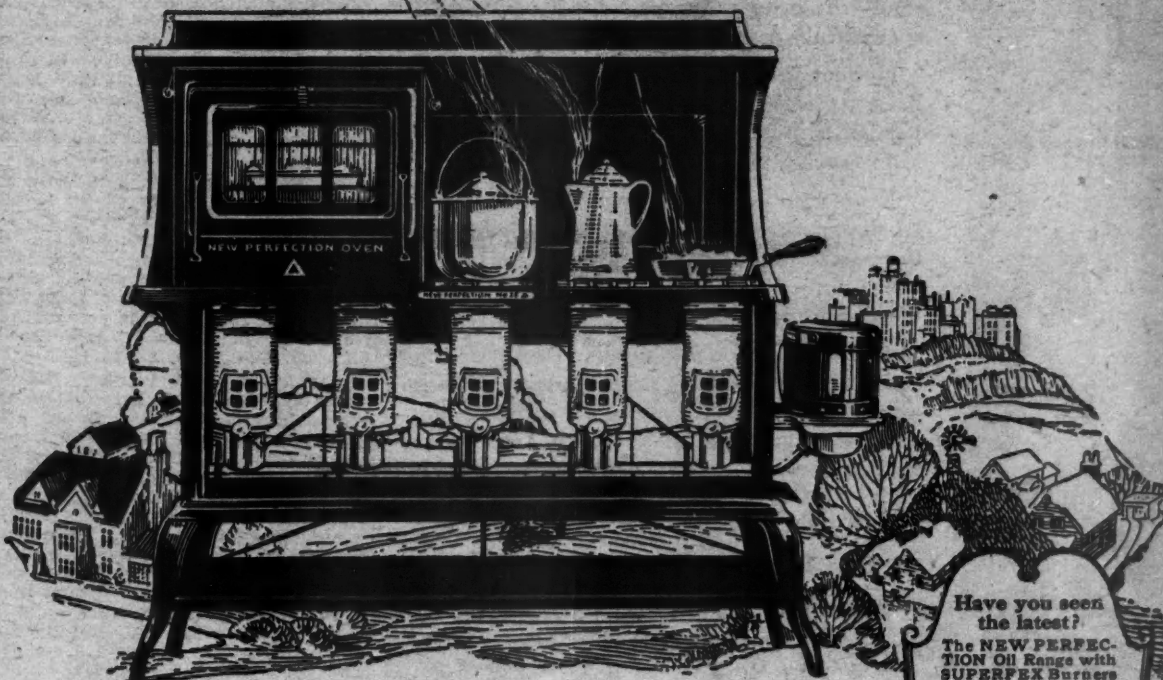
Use a Spreader

If you have never used a spreader, invest a little money and try the experiment. You are always bound to be gratified by the results. This is especially valuable in your cover sprays. The spreader helps the spray to cover the entire surface. It prevents bad blotching and probably would tend to reduce injury. It has advantages too numerous to mention. Orchardists on the Pacific coast who have been using spreaders for a number of years, would not give them up for anything.

Prune Now!

Often in going through an orchard, a grower sees a tree is altogether too thick. It may have a great many water sprouts and he thinks another winter he will thin that tree out. If you have the time, there is no time like now to do that thinning. Cut out the water sprouts. Open the tree moderately here and there to let the light in, to cover the fruit and to develop the buds for the succeeding crop. This does not mean heavy pruning, cutting the trees all to pieces, but simply a common sense opening up of the tree sufficient to let the light get in and do its beneficial work.

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FOR oil stove economy the year 'round—cooler kitchens in summer and comfortable kitchens in winter—use this big 5-burner New Perfection. With a perfect baking New Perfection Oven, it makes easier work of harvest cooking.

Your neighbors will tell you about the many advantages of the famous New Perfection. Its quick-heating, clean-cooking Blue Chimney burner, which has made it the favorite of four million women the world over. Lights at the touch of a match, ready for use instantly, and does not blacken pots or pans.

Made in 1-to 5-burner models. Ask the New Perfection dealer about the one for your home. Also ask to see his Aladdin Utensils.

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Construction of New Type Trans-Atlantic Receiving Set by M. B. Sleeper75	The Home Radio—How to Make and Use It by A. H. Verill75
Construction of Radiophone and Telegraph Receivers for Beginners by M. B. Sleeper75	Vacuum Tubes in Wireless Communication by E. B. Bucher	2.35
How to Make Commercial Type Radio Apparatus by M. B. Sleeper75	White75
Wireless Telegraphy and Telephony Simply Explained by A. F. Morgan	1.50	Radio Instruments and Measurements	1.75
Experimental Wireless Stations by P. E. Edelman ..	.60	Radio for Everybody by A. C. Leachman	1.00
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Any of these books will be sent prepaid to any part of the world on receipt of price. Remit by Draft, Postal Order, Express Order or Registered Letter.

Book Dept. American Fruit Grower Magazine

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keting any product
in baskets.

Profitable Orcharding

By W. G. Brierley

Orchards Properly Managed Give Profit

Well located and properly managed Minnesota orchards are yielding satisfactory returns. Poorly managed orchards are being run at a loss. From data obtained in 64 Minnesota orchards, which present a good cross-section of orcharding in the state, it has been found that the average gross return to the acre is \$215.77. The returns range from \$23.75 an acre in a poorly managed orchard up to \$560.81 for a very well handled orchard. These figures are five-year averages for the seasons 1916 to 1920. In 15 of the poorer orchards totaling 74 acres the average gross return per acre was \$46.73. In 28 of the better orchards totaling 192 acres the average gross return per acre was \$307.81.

Figures for crop yields in these orchards show a range of 31 to 400 bushels an acre with an average yield of 149.8 bushels for the seasons of 1916 to 1920 inclusive. Of the 149.8 bushels 135.8 bushels were marketed, two bushels were used at home, and there were 12 bushels an acre of culls which were sold at a low price, made into cider, or fed to stock.

The average cost per acre has not been determined definitely, but is approximately \$115 per acre per year including interest, depreciation, and owner's labor. To meet this cost the grower must sell 75.2 bushels of marketable apples at the average price of \$1.53 a bushel. In nine poorly handled orchards totaling 44 acres the average total yield per acre was 59.4 bushels. As a large proportion of the yield was culls, it is readily seen that these orchards were run at a loss. In 12 well managed orchards totaling 86 acres the average total yield per acre was 254.2 bushels. This yield will sell readily for enough to meet all expenses and leave a goodly margin for net profit.

Bordeaux Deterioration

Some fruit growers continue to use Bordeaux as a fungicide in all their spraying operations from choice, and others, located where they must fight apple blotch, bitter rot, and similar diseases, are compelled to use it. All who use this spray know how rapidly it deteriorates from standing, and we believe the following statement by Prof. O. G. Anderson will be appreciated by all Bordeaux users:

"In tests carried on at Vermont with twelve freshly made Bordeaux samples of 5-5-50 strength, it was found that the addition of one pound of sugar to fifty gallons of material preserved the spray in a useful condition for three months. In fact, half a pound was found in certain instances to be sufficient. These amounts were also found to be better than the former recommendation of four pounds to fifty gallons. Varying results by different growers from using Bordeaux which has been allowed to stand is due to weather conditions at the time of making the application.

"From my own observations I am inclined to think that Bordeaux injury is greatly increased under cold, moist weather conditions. I have known instances where under more favorable conditions the same variety of tree and the same strength of Bordeaux produced little or no burning."

Reference Vermont Bulletin No. 196.

Spray the Tree Tops

A careful study in the Hood River Valley has shown that most of the wormy apples are found in the tree tops. An actual count showed that the first twelve feet above the ground only about 1½ per cent of the apples were wormy, that for the next twelve feet the portion increased to 3.6 per cent but twenty-two feet and higher, 17 per cent of the apples were wormy. Handle your spraying and dusting in such a way as to cover the entire surface.

MINERALIZED WATER ROUTS CHICKEN LICE

Tablets Dropped into Drinking Founts
Banish Vermin, Make Fowls Grow
Faster and Increase Egg Yield.

Any poultry raiser can easily rid his flock of lice and mites, make chickens grow faster and increase their egg yield by simply adding minerals to the fowls' drinking water. This does away with all bother, such as dusting, greasing, dipping and spraying. The necessary minerals can now be obtained in convenient tablets, known as Paratabs. Soon after the



fowls drink the mineralized water, all lice and mites leave them. The tablets also act as a tonic conditioner. The health of the fowls quickly improves, they grow faster and the egg yield frequently is doubled. Little chicks that drink freely of the water never will be bothered by mites or lice.

The method is especially recommended for raisers of purebred stock, as there is no risk of soiling the plumage. The tablets are warranted to impart no flavor or odor to the eggs and meat. This remarkable conditioner, egg tonic and lice remedy costs only a trifle and is sold under an absolute guarantee. The tablets are scientifically prepared, perfectly safe, and dissolve readily in water.

Any reader of this paper may try them without risk. The laboratories producing Paratabs are so confident of good results that to introduce them to every poultry raiser they offer two big \$1 packages for only \$1. Send no money, just your name and address—a card will do—the Paratabs Laboratories, Dept. 943, 1100 Con Cola Bldg., Kansas City Mo., and the two \$1 packages, enough for 100 gallons of water, will be mailed. Pay the postman \$1 and postage on delivery, and if you are not delighted with results in 10 days—if your chickens are not healthier, laying more eggs and entirely free from lice and mites—your money will be promptly refunded. Don't hesitate to accept this trial offer as you are fully protected by this guarantee.

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Horticultural Digest

Nut Literature

NUT growing is becoming more and more popular in this country and those engaged in this business are naturally interested in available literature.

A book of interest to all is entitled "Nut Growing," by Robert T. Morris. This book contains some 233 pages in addition to plates. It is written in a free and easy style, one which every amateur can understand.

The first forty pages are devoted to general notes in which the writer very entertainingly shows the relationship between the increase of population, food supply and the part which nut growing can play in this program.

Part two is devoted to propagation, the first chapter dealing with seeds, oils and transplanting, which would be of interest to all nut growers.

Chapter Two, dealing with grafting, is one of the liveliest subjects facing nut growing today. This chapter is nicely illustrated with plates found in the back of the book.

Chapter Three, is devoted to a discussion of hybrids. This is followed by a discussion of orchard care, including pruning, inter-cropping and handling of parasites.

Part Three of the book is devoted to a discussion of the various species or varieties of hickories, walnuts, hazels, chestnuts, pine nuts, beech and the almond. Dr. Robert T. Morris, the author, has been an enthusiast over nut culture all his life and is one of the recognized authorities on this subject in this country.

The book is published by The McMillan Company and the cost of the book is \$2.50.

Western Nut Report

Nut growers will be very much interested in the fourth annual report of the Western Nut Growers Association. The secretary of this organization is Mr. C. E. Schuster, Corvallis, Oregon. The dues of this organization are \$2.00 a year.

This report is devoted more to the Filbert than any other nut and considerable attention is given to the walnut. Concerning Filberts, such phases are taken up as grafting, pollination, marketing, transplanting so as to prevent the growth of suckers, and irrigation and inter-cropping.

Interesting phases on the management of the walnut include: Selection of the proper location, discussion of varieties and marketing of the product. The reports of the association are always well worth while, it being one of the liveliest nut organizations in the United States.

Available Bulletins

Circular No. 258 by the University of Illinois, Urbana, on "Orchard Practice for the Control of Blister Canker of Apple Trees," will be of interest to apple growers all over the middle west. This disease is responsible for the decline of apple growing in this section, more than any other one factor. The authors show that the Ben Davis, Yellow Transparent and Chango are the most susceptible varieties. It is shown in the bulletin that by the proper protection and dressing of the wounds, this disease can be nicely controlled.

The New Haven, Connecticut, Experiment Station has just issued Bulletin No. 235, entitled "Experiments in Dusting versus Spraying on Apple and Peaches in Connecticut in 1921." The results show that with apples somewhat better results were obtained by spraying than by dusting, but that with peaches slightly better results were obtained by dusting than by spraying.

The Cornell Experiment Station, Ithaca, New York, has just issued Bulletin No. 233, entitled "Control of Insect Pests and Plant Diseases." This bulletin gives suggestions for the control of all the common insects and diseases attacking fruit in the state of New York.

The Colorado Agricultural College of Fort Collins has issued Bulletin No. 273, which is an orchard survey of the Arkansas Valley District. This will be of interest to fruit growers of that section and to all students of orchard management and economics.



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Kills Aphis

Recommended by agricultural colleges and experiment stations. Don't make the very common mistake of thinking that Lime-Sulphur, Arsenate of Lead or Bordeaux kills Aphis. These sprays don't, but if you are using them, simply add Black Leaf 40 properly diluted, and make one spraying do double duty. Aphis also attacks Peach, Plum, Cherry as well as many vegetables and plants. Black Leaf 40 is highly concentrated so that only a small amount is required. The cost is small—only a few cents per tree.

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thirty-four branches

Sod Mulch

I HAVE 12 acres of apples and 9 acres of pears set out a year ago this fall, and 11 acres of pears set a year ago last spring. I have kept them cultivated. They are on level ground with just enough fall for good drainage. The soil is brown silt loam on tight clay. I have a large amount of wheat straw and would like to know if it would give satisfactory results to put a heavy mulch of this straw for 5 or 6 feet around each tree, not putting any real close to the tree so that mice would girdle it. I would like to use the mulch instead of cultivation, as I could apply it during the slack time in farm work while the cultivation comes at a time when I am very busy with other farm work. Please tell me if it would give good results and if so, when would be the best time to put it on?

Do you know of any satisfactory paint or whitewash that can be applied to young trees to prevent damage by rabbits?—C. M. R., Illinois.

THE mulch system has often been used with good success. In Ohio the sod mulch has given good results. Some experiments in certain parts of the country indicate that cultivation is best, while the sod mulch advocates also report good results. The sod mulch is particularly adapted to steep land where cultivation is more or less dangerous. As your land is not very steep, my recommendation would be to cultivate for the first few years, at least cultivate a strip four or five feet on each side of the trees. In between the tree rows you can grow some cultivated crop such as corn, soybeans, cowpeas, vetch, etc., but my advice would be to continue cultivating at least in these strips alongside of your trees. I have followed this same practice in my orchard and have gotten splendid growth. However, my three-year-old orchard is on rolling land and this year I am putting in a mixture of sweet clover, red clover and vetch. I expect to follow the sod mulch system on this orchard.

The straw mulch that you mention would tend to conserve moisture, but is not as good for very young trees as cultivation. If you use the straw on part of your orchard, you can apply it at any time. You are right in not letting the straw get up too close to the tree trunk as straw and litter around young trees tends to give protection to mice which results in damage to the trees.

For protection from rabbits, there are a number of methods to follow. You can apply rabbit protectors made of galvanized wire cloth or some other protector that will keep the rabbits away. The lime sulphur applied without diluting to the trunk of the tree is of some benefit in keeping rabbits away. Personally, I prefer a good galvanized wire cloth protector.—Paul Stark.

Dynamiting—Pruning Cherry

I PLANTED some cherry trees last fall of the Black Tartarian variety. The soil was very rocky and I had to use dynamite to get through the hard pan and when this rock was gotten out, we had holes 3 1/2 or 4 feet deep. It seems we didn't pack the soil firmly enough in the bottom of the hole and after the winter rains the trees sank six to eight inches. Would it be safe to fill in, or should the trees be dug up and reset? Are cherries pruned (fall set trees) back in spring as much as fall set apples and peach trees?—Mrs. J. D. McC., Missouri.

UNLESS you are very careful, soil which is dynamited for the planting of trees will have air-pockets. You should be very careful in packing and filling the holes with dirt around trees which are planted in dynamited holes. Dynamiting is very beneficial in rocky or gravelly soil. Late summer or early fall when soil is dry is the best time to dynamite. In your case, I would fill in the holes around your trees. Otherwise, water will collect about the base of the tree—and cherry trees do not like wet feet. Fruit growers are finding that cherry trees require moderate pruning when planted out. They should be pruned moderately but not quite as severely as apple trees. Peach is pruned much more severely than either apple or cherry.—Paul Stark.

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The Son of Wallingford

By GEORGE RANDOLPH CHESTER
and LILLIAN E. CHESTER

Young Jimmy Wallingford with "Toad" Jessup narrowly escapes running over a flock of geese. Pretty Mary Curtis laughs at them, and from that moment Fawnlake City becomes to Jimmy the most desirable place in the world to locate. Dusk finds them still talking to Tal Curtis, Mary's handsome father; but in leave-taking, as he is about to give his name, Jimmy polyanthly recalls the scene in the Wallingford library that is the cause of his leaving home. J. Rufus had angrily exploded: "I am not satisfied with you, Jimmy." When he leaves home, Jimmy drops all but the first syllable of the family name. He with Toad Jessup goes to Fawnlake City, to be near Mary Curtis. Toad finds oil bearing rock on the Curtis farm. They start drilling for oil. At a thousand feet they sell their racing car to get money to continue drilling. At Fawnlake City, Jimmy and Toad find J. Rufus Wallingford, Blackie Daw, enjoying a Persian Carnival. Mrs. Wallingford and Violet Blackie Daw have come back with the boys. Blackie Daw discovers Jimmy and Toad are the "Wall" brothers, so Wallingford refuses to go on with his fake land scheme. Jimmy gets jealous when he sees a stranger talking intimately with his Mary. Jimmy recognizes the stranger as "Doc" Blenkins, a medical student. J. Rufus Wallingford pays the Beegodees \$10,000 for the land he was to boom. The Beegodees are disturbed by Wallingford's apparent satisfaction with the deal. Lottie and Dottie McCabe of "On With the Jazz Company" call on Bertram Beegodee, M. D. Dottie says she has a sprained ankle. By their professional demands upon his attention, the young women of Wallingford's "On with the Jazz" company wreck Dr. Beegodee's village practice and enrage his sister Caroline. Meanwhile, Wallingford, Sr., and his friend, Blackie Daw, refuse information concerning a huge roofless, windowless structure and ten tanks that they construct on the land they bought from Henry Beegodee. Eighteen miles away, across the county line, they have a dozen tank cars of crude oil and a gas engine pump attached to the forgotten natural gas line that once ran into Fawnlake City. With a curious crowd outside their highboard structure, J. Rufus and Blackie await oil. Fawnlake City has an oil crisis, as the developments progress. Jimmy has a fight with Dr. Beegodee over Mary. Then Mary tells Jimmy, "Dr. Beegodee is to be my husband." Dr. Bertram Beegodee tries to defraud Get-Rich-Quick Wallingford but the latter has surprising evidence. Wallingford pumps oil into old gas pipe line believing it feeds Jim's well.

WHEN they reached the street there was a throng in front of the Fawnlake Bank, and the throng was there—oh, blessed be luck—to buy allotments of dry sand in New Bagdad, at prices which would have been taken for a mirage a month ago! Oh, rare and luscious! Henry Beegodee, tempted beyond his strength, was taking a chance on the outcome of the trial and selling sand he didn't own, which would give all Fawnlake City a personal "grouch" at Henry's knavery. Shouting and gesticulating and fighting to get in, the citizens, swayed in the beautiful morning sunlight. A dazzling idea had struck them all; here was land which did contain oil, and all you had to do was buy it at any price and become instantaneously so rich that you wouldn't have to care what you'd paid for it! There was no question about ownership. Henry Beegodee guaranteed that, and they knew he was honest and substantial and good for the money. That was the safety of doing business with home folks!

There had been an almost equal clamor on Curtis hill, but that had soon died down, for the word went quickly round that Tal Curtis had no land to sell. Be a fool if he did! Anyhow, all Tal's land was owned by the Big Hope Oil Company, and that rich corporation wasn't going to decide on anything hastily. They weren't greedy, like Henry Beegodee; they could control their appetites and hold off; a smart young man was dictating the policies of the Big Hope, a Wallingford! And those who came and went away reported that the shrewd young promoter was sitting in his tent, paying attention to no one and thinking deeply. They naturally supposed him to be concentrated on oil, for in heaven's name, what else? But they were wrong. Oil or riches or ethics were not at all in Jimmy's mind when he finally emerged with a twinkle in his narrowed eyes and a quiet smile on his lips.

"We'll be back in a few minutes, Tal," he told the proud president, who sat in an armchair, in front of the oil well, the breeze fanning gently the curls at the back of his neck, and on his infantile face an expression of such beatitude as only the angels wear. Taking Toad with him, Jimmy strode around the hill and across the road and into the back parlor of the Waite residence, where the Jazz young ladies piled on the successful diggers with every manifestation of emotional happiness.

"Well, you did it, old kid!" said Lanks, hovering over Jimmy regardless of the splatters of oil which embellished him. "I had to hold back the flock by main strength from dashing up to congratulate you, but I was afraid we might toss something in the works and break a wheel!"

"It's been done," reported Jimmy, the quiet smile still with him and the musing light in his eyes. "I queered

it myself, and now I have to play the ace. Which of you girls wants to marry the richest young man in this town tonight?"

THE murmurs which rose constituted what might be termed an ominous growl, signifying that Doc was not popular with the blandishers.

"Not Cleo!" blurted Toad with a vigor and vehemence so surprising that all other conversation stopped abruptly, while they stared at him. Cleo, sitting next to him, stared at him the hardest, and the longest, and the most astonished.

"Light of my life!" she at last exclaimed, and snuggled, not leaned, her willowy figure straight into his arms, and slid a flexible arm around his neck.

Toad looked down at her from this short range and his face turned so red that his freckles were lost; but he was game, and he kissed Cleo a resounding smack on the lips, to the accompaniment of a shriek from all the rest.

"Girls, I'm gone!" confessed the

breathless Cleo. "I started out to be an enemy to man, but I'm a slave in the first battle."

"That reduces the candidates to six," figured Jimmy, reaching over to shake Cleo's warm hand.

"Cut it to five," observed Lanks, and even Jimmy, obtuse as he had been to what lay beneath the warm comradeship of lanky Evelyn Anderson, was struck by some queer undertone in her; but when he turned to her she was laughing carelessly, and added: "Id do anything in reason for you, old darling, but, personally, I can't see it in reason to marry Beegodee for gold!"

"Oh, a fellow might do worse," piped a baby voice. Florodora had sat in unnoticed quiet, weighing and measuring and estimating generally, and in her lustrous eyes was still the calm light of sane calculation. "I've been broke away from home once, and it might happen again. I could stand him—with money!"

"But, Snookums," worried Lanks, "from all I've seen of the doc, I think he has made up his mind to marry respectably, and let his love stray where it will. How could you get him into marriage?"

"I know!" piped Florodora. "I'll show him those photographs, and promise to save him from being laughed out of his old home town, and he'll marry me through gratitude!"

Chuckling with a chuckle like his father's, Jimmy rose to go; Jimmy, the successful promoter; Jimmy, the

oil magnate; Jimmy, the brilliant, young business boy!

OH YES! And at that very instant Jimmy's father, in the dim high inclosure over on New Bagdad, finished measuring the wet part of a plumb line, and said sadly to Blackie and the pumpers, who had come over to see what was wrong:

"Yep, the Big Hope was spouting our oil. The level of tank ten is nearly half a foot below its gauge. Say, you, Pete, stand back from me! What have you got on your breath? Nitric acid?"

"Vodka," grinned Onion. "He made it out there, fresh last night. It tastes like an old gum boot, but it's got a hind leg like a kangaroo! Have a kick?" He produced a flat bottle from which both connoisseurs of good liquor backed away in horror, then Wallingford suddenly reached out and took it.

"I'll just detain this till some time when I want to kill you with it," he chuckled. "No man can keep a secret with this on his tongue." He slipped the bottle in his coat pocket, not knowing that they were lugging a bottle in each hip, then he hung his coat on a nail alongside Blackie's, and the two of them began to wash up.

Fateful moment. The unsleeping red eye of the cast-out Bolshevik happened to detect a violet-tinted paper in Wallingford's inside coat pocket, and his unsleeping red ear had overheard a discussion relating to this precious document.

It was but a moment's deft work to



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In regulating an incubator, running a tractor, or cleaning dairy utensils, great care must be taken to do the work in the right way.

It's just as important to clean the teeth the right way. A good farmer would no more buy a gritty, soapless dentifrice for his family than he would use a gritty soap to wash the high polish of his car. Nor would he give the children a "druggy" tooth paste with strong chemicals any more than he'd use a spraying material so strong as to burn the foliage of his orchard.

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slip out that paper, with no gaze on him but the horrified, glassy stare of Onion Jones. Quietly he dropped it behind the pile of iron casings, the only proof which Wallingford had that he wasn't a brazen land thief as charged, the priceless bill of sale which was to be the bomb for the Beegoodes in tomorrow's trial!

Oh, yes! The Beegoodes were to be driven out of Jimmy's town and disgraced forever with that violet-hued bit of paper; they were, perhaps—but just now they were fair fatigued with taking in good money and issuing receipts to be exchanged for deeds after the trial, and they had already made enough sales to buy up more oil land to sell, and Ebenezer Terwixter was on his way to get it. He was empowered to pay up to two hundred thousand dollars for the capital stock of the Big Hope Oil Company—which meant the wonderful oil gusher and the rich oil-bearing land!

At half past 8 o'clock Jimmy Wallingford and Toad Jessup burst into the turkey-red parlor on the park front of the third floor of the Hotel Splendide, full of their great good fortune. By turns and together they told how they had struck the oil and what mad excitement there had been, how Tal and mother and grandma had en-

joyed it, and so they came down to the great moment.

"And what do you think, dad! We have an offer of two hundred thousand dollars for our company! And I think I can bring it up to a quarter of a million! Our stockholders are to go into final negotiations in half an hour—with Henry Beegoodes!"

J. Rufus stared at the boys in stupefaction.

"Henry Beegoodes!" he choked. "That's too much money to pass up, boys, and—and—" He cast a glance at Fannie and turned stubbornly away from the frightened appeal in her eyes. "Well, my advice is to take it!" he suddenly blurted, and smacked his fist on the arm of his chair.

"And get it all in a certified check!" supplemented Blackie.

"And say, boys!" said Violet Bonnie Daw, "when you grab the check, beat it straight to Henry Beegoodes's bank and get the money!"

"Jim." The voice of Fannie. It was low, full of the same frightened appeal which was in her eyes.

"I won't. I can't!" and her husband glared at her with both fists on his chair arms now. "I say take the money!"

He rose and, without a glance at

any one, went to the window and looked out stubbornly.

"You'll have to be told the truth, Jimmy," said his mother with a little catch in her voice, and she glanced at the broad back of her husband. "There is no oil in your well."

"What!" Toad was on his feet, and his voice shook with indignation, but Jimmy, holding himself very quietly indeed, looked from his mother to his father, and from his father back to his mother.

"How do you know?" "Ask your—" Her voice broke. She could go no farther. This was the first time she had ever exercised a separate will from her husband's.

"Suppose you tell us all about it, father," suggested Jimmy, and now there was a quality of deadness in his quiet.

"Well Jimmy." J. Rufus sat on the window seat and stuck his thumbs in the armholes of his vest. "From the fact that you boys haven't asked any questions I have surmised that you know our oil well to be a fake. It is. We're pumping oil into our well and into our tanks through some deserted gas mains from a pumping station eighteen miles away." There was a crackle of something breaking. It was a spindle of the cabinet on which Jim-

my's hand had gripped as he listened, while Toad stood numbly staring at J. Rufus. "We lost three tank cars of oil through a leak into a rock pocket which we have located. You struck that rock pocket, that's all. Whatever oil gushed out of your well we lost."

"God!" The pieces of the broken spindle came out into Jimmy's hand and he threw them clattering into the corner. There was not a vestige of color in his face, and there were hard lines about his jaws which had never before been there in any moment of his life.

"This is absolutely the last straw! You've been worrying about what would become of me, about how I would turn out with by-lobesless ear and my overshrewdness, but it seems to me that all the worry should be on my side! Why, I can't even get rid of your influence on my life by changing my name! I haven't done a thing that is crooked, and yet you pursue me with it! I haven't had a chance! You gave me life that I didn't ask for, a heredity I had no chance to choose! And my mother, knowing what you are, brought me up under your influence! She kept me with her and she lived with you! Mother, why didn't you let one of us go?"

Fannie Wallingford raised her head, and the smile that she gave Jimmy through her tears and the smile that she turned from him to his father was such a smile as martyrs have worn on their lips when they were crucified for some glorious cause.

"Love, Jimmy, that's all," she said, simply and gently. "I loved you both."

(To be continued.)

Powdery Mildew

Powdery Mildew is pretty bad some seasons on varieties like Jonathans, Grimes and Rome. It attacks the end of the growing shoots, causing a white, powdery like accumulation. The shoots stop growing and the ends are weakened and often killed. The disease later will often attack the fruit, making a spider-web tracing over the surface and making the apple a cull or a cooker.

Powdery Mildew can generally be controlled by the sulphur sprays. In those sections of the country where the delayed dormant and pink sprays are used, mildew is rarely bad. Where it does appear, the summer sprays of lime and sulphur of a strength not greater than 1 to 50 will generally suffice, to control this disease. In addition, when pruning in winter, cut off the attacked shoots and burn them.

Sweet Cherries

Sweet cherries tend to grow very tall and rangy, without many laterals. This is especially true the first three to ten years of the tree's life. This habit can be partially controlled by a moderate amount of pruning. The tendency of the tree will be to force out laterals down below the point where the terminals are cut off. This will make the tree spreading and broad and give more bearing surface.

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The Orchard Home

A Section for All Members of the Family

Edited By MARY LEE ADAMS



Learning What to Eat

THANKS to the unremitting efforts of the health authorities, a wide-spread knowledge of hygienic personal and food habits has been disseminated and Americans are showing more wisdom in the selection of their daily diet than formerly. Less meat is eaten and more fruit and vegetables.

Fruits especially, which were once thought of as merely a luxury or pleasure that had little to do with building or maintaining physical efficiency, are now coming into their rightful place as a prime necessity to physical efficiency. On the other hand meat does not form so large a portion of the daily fare. In the past twelve years, the annual consumption of beef is shown by the Bureau of Animal Industry of the Department of Agriculture, Washington, D. C., to have decreased 20 pounds per person.

There are nations in the Orient that look upon the eating of flesh with horror. They lay claim to a higher spiritual development than that of the meat-eating peoples. While we may not attach much importance to what a Hindu thinks of us, the fact remains that he regards us as rather grossly material.

The trend of the times seems to be not to banish meats from our tables, but to balance the former excessive consumption of flesh foods by a liberal quantity of fresh vegetables and a large and varied allowance of fruit.

Help You Can Give

THE best teaching is done outside of schools and without lesson books.

These bookless lessons should be given in the home. The greatest of all lessons is how to live worthily and to parents is intrusted the teaching of it. Not the preaching, mind you, that's generally resented, but simply impressing upon the plastic mind of the child such knowledge and such ideals as shall be reliably helpful when he begins to realize his individuality. Thenceforward he performs becomes his own guide, though handicapped by lack of experience and judgment.

When the effort to influence children is postponed until some unfavorable trend of character appears with dawning maturity, it is already late, sometimes too late. At this age the sentiments of independence and opposition holds sway, and the boy is quick to suspect that an effort is being made to guide him. This is frequently enough to head him in the opposite direction.

But little children have the quality of unquestioning faith. It is then that many things can be molded into the very composition of their minds to become, unconsciously to themselves, an integral part of their being. It's never too early to instill the beauty and need of truth and honesty. To foster in the naturally egoistic little person not only personal unselfishness, but an idea of the relation which he is to hold through life to the whole world of people about him.

Let him sense his personal responsibility and his comparative unimportance. He'll

like the idea that "he is one among many, all bound to one another, falling, rising, stumbling forward, always forward, and always together." He should grow up with the comprehension of the nobility of work well done, and understand that it is the only way in which each one may do his bit toward bearing the burden of all.

Early teach the youth the value of a healthy body, and as the body must be clean and healthy, so must the soul that dwells therein be clean and strong. The child need not perceive that he is being taught, a process which would but make him restive. And there's a fine old lesson for parents—Example is better than precept.

The Moonlight Schools

THAT sounds romantic and it really is romantic. What finer adventure could there be for an adult illiterate than the gaining of an education? That such a one has awakened to the terrible handicap of illiteracy, is proved by the eagerness to overcome it. That it is being overcome, is one of the noblest romances of the southland, where the isolated mountaineer was so cut off in his youth that he finds himself distanced in "book learnin'" by his children who benefit by the schools which are slowly threading their way through the defiles of the hill country.

The name "moonlight schools" was given because the sessions for adults are held at night after the day's work is done. Mrs. Cora Wilson Stewart, of Frankfort, Kentucky, has taken perhaps the most prominent part in spreading the campaign for the education of adult illiterates. She tells us some wonderful and delightful things about the mountaineers and their great longing to know at least how to read and write.

The first moonlight schools were opened in Rowan County, Kentucky, after Mrs. Stewart became convinced of the demand for them through pathetic interviews she had held with mountaineers—young, middle-aged and old. In the fifty school-houses of Rowan County, it was announced that night school would be held four times a week. About 150 adults were expected, and 1,200 answered the first roll call. The youngest was near 18, the oldest was 94.

Since that time 130,000 adults of Kentucky have been taught to read and write, 17,892 illiterates have been educated in Georgia and more than 10,000 in North Carolina. It is the contention of those who solicit federal and state aid for carrying on this work, that those who profit by it will within two or three years much more than repay to the country the bill for their education, since their standard of living in general will be greatly raised as well as their earning capacity increased. What it will mean to civic and national progress through the growth of an intelligent voting class, is obvious.

Home Made Conveniences

IT HAS been said that "whatever lessens woman's work benefits the race." That's true in the main, though there's a limited

class of women who do no work and who would be healthier mentally and physically if they did. There are lazy and idle women who come pretty close to the condition best described as "dry rot" for lack of any stimulus to activity.

There are women who do not work in the ordinary acceptation of the word, who yet spend their lives to wonderful advantage seeking means to ease the burdens that fall too heavily upon others. As for the woman who devotes her entire time merely to frivolous pleasures, she really is the most tired of all women, and works harder at society than the farm woman does at cooking, washing, caring for the children and the thousand duties of the ordinary farm home.

For such women as these, "whatever lessens woman's work benefits the race." Household conveniences go a long way toward easing her work. There are many so simple, and withal so useful, that they should be in every rural home. Many of them cost practically nothing and are well within the reach of everybody.

"Farm Home Conveniences" is the title of Farmer's Bulletin 927, which may be had on request from the United States Department of Agriculture, Washington, D. C. This bulletin illustrates and describes how to make a kitchen cabinet, a fireless cooker, sponge box or bread raiser, dish drainer, heights of working surfaces, serving tray, folding ironing board, rack for portable ironing board, iceless refrigerator, cold box, equipment for home butter making, cheese-making equipment, shower bath, well protection and water works, fly trap, window screen, cook-stove dryer and evaporator, cleaning closet. Your home needs one or more of these things.

Wit, Wisdom and Verse

A FARMER'S three sons started work at equal salaries for the same employer. At the end of a year Bill was still getting what he began with, Tom had been given a raise of 25 per cent, and John was pulling down just twice as much. The father asked their Boss the reason for this apparent injustice. The convincing reply was—"Bill doesn't do what he's told to do. Tom does as he's told. John does without being told."

A MAN will fall in love with any woman who treats him as if he were not generally appreciated at his true worth.

KNOW the signs of the times. A plain gold ring on the fourth finger of a woman's hand, signifies that she is either married or a widow. If a fine line of green enamel runs round the ring of gold, that implies "grass" before "widow," but when the ring is encircled with brilliants, that means alimony.

"TRY some of Sol's delicious Jewish coffee." "What's Jewish coffee?" "Well he brewed it and its fine."

Greetings From S. S. Olympic

By Mary Lee Adams

ABSENT in body but present in spirit, expresses my relation to the orchard families with whom it has long been my pleasure to hold a monthly chat. Many of them seem very close to me through the letters they have written. I have felt the friendliness of the generous appreciation they have shown for any pleasure I may have been fortunate enough to bring to them. And I have not been unmindful of the helpful interest evinced in the occasional wholesome criticism they have expressed.

When you read this, the motion of the boat that is tossing on the temperamental breast of the Atlantic, may have wiped out temporarily the broad smile which the photographer caught when he snapped me for the Orchard Home Department of the AMERICAN FRUIT GROWER MAGAZINE. Kindly send me a wireless mental suggestion of health as the good ship bears me toward Great Britain, Norway, Sweden and other European countries.

I am hoping this trip may not be quite without interest to you, because it is going to be a little different from the usual holiday jaunt. In every country visited, Samuel Adams, the Editor, and Mary Lee Adams will make a study of the conditions of farming and farm folk, and of agricultural co-operative organizations.

Sisters Over Seas

What the women are doing and how they are done by, will be my special interest. Every month I shall write something telling of these far-away sisters of ours. I wish them well, but I shall be much surprised if, after seeing them at home, the circumstances of our own orchard women do not appear more enviable than ever.

With Americans for an audience, it is inspiring to think that there is scarcely a country one can mention without striking a responsive chord of special interest for some of our readers. Either we or our forbears came from these old countries, and their traditions run in our blood.

I, for instance, thrill at the thought of roaming the enchanting Trossachs in the "land o' cakes an' brither Scots." In spite of the education I have received from our own flappers, I want to glimpse the rugged knees of some hardy Highlander—one of the erstwhile "Ladies from Hell" of the great war. I want to see the little highland cattle that the roaring raiders used to drive from clan to clan when the Campbells were coming, and I do want to walk the streets of beautiful Edinburgh.

Then to think of seeing Westminster Abbey, even without a royal wedding going on, makes my eyes dance. There are too many things one longs to visit in England. I'd almost sooner pass by the palaces and cathedrals and parks, than miss the dear thatched cottages, each with its delightful little garden of old-fashioned flowers, where one may hear the "swallows twittering from the straw-built shed."

My Wild Irish Rose

I'd like mightily to stick my head into Ireland, but am afraid somebody might hit it with an "alley apple" (brick) before I could jerk it back. However, courage may be given me even for this adventure. As for navigating Norway, we count on fishing every fjord from Bergen to the North Cape—rather more than a thousand I believe.

The land of the Midnight Sun looms romantic as an old Saga before us. Tales of the great Vikings stir the imagination. The country shows superbly beautiful with its snow-capped mountains rising straight up from the very edge of the deep, narrow fjords.

Wouldn't it be entertaining to learn some of the housekeeping secrets of the Lapp ladies? Are their tastes as ours, or do they run more to tallow candles and gum drops? Sweden, though, is famous for its huge assort-

ment of cakes. Perhaps you'd like to know how they are made. It would be rather fun to give a party at which only Swedish cakes were served.

The Passion Play

Can you imagine going to Europe this summer and not seeing the famous Passion Play at Oberammergau? I can't. The vast crowds that are expected there, may make it impossible to get any kind of personal touch with the devout peasants of the little Bavarian village, but at least we can see Anton Lang, who plays the part of Christus this summer for the third time. Is there really a man to be found with so spiritually beautiful a countenance as his is shown to be in the pictures we have all seen of him?

Somehow it hurts to think of going to France for, of course, one could not omit an almost sacred pilgrimage to the battlefields, and that would be very sad. The devastated orchards of that fruitful land will interest us tremendously. We hope to find that France, with her usual marvelous power of recuperation, is restoring her apple lands and her vineyards. After the tears one must shed over the traces of the war, there is still Paris to inject a little cheer.

Would you prefer to visit the tomb of Napoleon and to see the statue of Joan D'Arc, or to glimpse the old Kaiser in the flesh? If Holland receives us, I'd certainly wander round and round Doorn in the hope that Wilhelm might be looking over the fence. I like him lots better now in that artistic Van Dyke beard than with the former military mustache. To wear wooden shoes and twenty petticoats and to eat Edam cheese extends a certain lure, and every traveler wishes to voyage on the canals of Holland and to visit her exceedingly quaint little island of Maarken where all sorts of funny things are done and worn.

Always More to See

If Russia is not burning too red, it would be a great experience to pass her borders and see with one's own eyes what a soviet country looks like and whether there are any people there who seem natural and happy, or whether universal gloom and want overspread that most unfortunate land.

I wonder whether time will permit of a short glimpse of the Swiss Alps. How interesting for one who has traveled all over our own land, to make mental comparison between the Rockies and Sierras and the Swiss Alps, and to see in what lies the generally accepted superiority of Switzerland over all other scenic localities. If she can show us mountains, lakes, forests or even snowfields superior to some we have seen here, then we shall acknowledge it even though it may go a little against the grain.

There's one sight of which it may be confidently predicted that it will be hailed with exceeding great joy and with a beating of the heart that not one of the wonders of the old world has been able to cause—that's the sight of Miss Liberty, standing in New York harbor to enlighten the world. And behind her will rise the tall skyline of the first buildings we shall see after losing sight of land in the eastern hemisphere.

King Apple

Of all the fruit beneath the sun The APPLE is the best, bar none. And though you bake it, boil or fry, 'Tis still the "Apple of your eye." Yea, camouflage it as you will, Yet, low, it is "King Apple" still. Ah, surely 'twas a mighty deed That followed "Johnny Apple-seed," Who calmly planted on his way Ancestors of the fruit to-day. Oh, let us all be wise as he And plant, or graft an apple tree. —Clara Moore Burton.

From the Japanese

Evanescence is love of artist
Who loves peach bloom;
Constant is love of farmer
Who loves fruitful tree.
Artists for lovers;
Farmers for husbands.
—Hokku.



4017. A Popular Style.

This jaunty style is girlishly graceful and withal comfortable. The jaunty collar is finished with "tie ends." Dotted Swiss and organdy with hemstitching is combined in this instance. Gingham and linen would be equally attractive.

The pattern is cut in 3 sizes: 12, 14 and 16 years. A 14-year size requires 4 1/4 yards of 32-inch material. One may have this dress finished as a one-piece style, or with separate blouse and skirt.

Pattern mailed to any address on receipt of 10c in silver or stamps.

4018. A Pretty and Unique Frock.

As a party frock in taffeta or crepe de chine, or for "summer wear" in crisp, cool organdy or Swiss, this style will be very pleasing. Yellow organdy with bindings of white and a bit of yellow embroidery could be chosen. Dimity or cross-bar muslin with hemstitching is pretty also.

The pattern is cut in 4 sizes: 6, 8, 10 and 12 years. A 10-year size will require 3 1/2 yards of 32-inch material.

Pattern mailed to any address on receipt of 10c in silver or stamps.

4020. A Dainty Frock for Slender Figures.

Just the right style for a graduation or party dress is here portrayed. In crepe de chine, net or chiffon it will be very attractive. It is also good for taffeta and linen.

The pattern is cut in 3 sizes: 16, 18 and 20 years. An 18-year size requires 5 1/2 yards of 32-inch material.

Pattern mailed to any address on receipt of 10c in silver or stamps.

4028. A Popular Slip-on Style.

This frock reflects the season. Its ribbon trimming may be replaced with embroidery, hemstitching or drawn work. Gingham, as well as crepe which is here portrayed may be used for this style.

The pattern is cut in 7 sizes: 34, 36, 38, 40, 42, 44 and 46 inches bust measure. The width at the foot is a little over two yards. To make the dress for a medium size will require 4 1/4 yards of 32-inch material.

Pattern mailed to any address on receipt of 10c in silver or stamps.

4030. A Neat and Serviceable Apron.

Percal with facings of linen is here depicted. Black sateen with cretonne would be attractive, as would also crepe with trimming of a contrasting color or with rick rack for a finish.

The pattern is cut in 4 sizes: Small, 34-36; Medium, 38-40; Large, 42-44; Extra Large, 46-48 inches bust measure. A medium size requires 4 1/2 yards of 36-inch material.

Pattern mailed to any address on receipt of 10c in silver or stamps.

4032. A Comfortable Frock for the Little Tot.

This will be pretty in dimity or chintz, as well as in voile or batiste. The sleeve may be finished in wrist or elbow length.

The pattern is cut in 5 sizes: 1, 2, 3, 4 and 5 years. A 4-year size requires 2 1/2 yards of 36-inch material.

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MARKETS AND MARKETING

ONE of the hardest problems the shipper has to contend with is the rejected car. During years like the past one, when the market was weak and continually getting worse, the percentage of rejected cars was always high. There are those always who take advantage of anything to get out of a purchase. They feel the market has gone down and they can buy the products for less elsewhere. There were whole sections of the country, for example in Iowa, where a very large percentage of the buyers last year uniformly rejected their cars, feeling that they could buy them cheaper after they had been rejected, or that they could buy some fruit that some other agent rejected, at a lower price.

In making a tour through the south I came across one man who I found had systematically rejected practically all his cars and was going along merrily until he got up against a real strong shipper who threatened him with a law suit and made him come across.

How is this evil going to be checked? There are several ways in which some relief can be obtained. One of these is to always ship the fruit to yourself, notify your agent—that is, do not ship the fruit direct to some agent or purchaser. By shipping it to yourself, advise agent, you can divert the car elsewhere if it is rejected. Second, you can always call for inspection of these cars. Third, we would advise generally, the rolling of the rejected car elsewhere and would advise against trying to dispose of a car of fruit in a market where it was rejected unless possibly this market be very large.

In one city in the south this winter, a car of bulk Rome Beauties from Idaho was received. The buyer, under the market conditions, scrutinized it pretty carefully and then turned it down. The shipper's agent faithfully tried to get someone else to take the car but as is always the case, in less than thirty minutes from the time the car was first rejected, every buyer in the city knew it and if anyone bought the car and attempted to handle it, his competitors would say: "Oh yes, he will sell those cheap to you—you know there is something wrong with them because so and so rejected them." The car in this instance, stayed on the track about a week; demurrage bills were climbing up; the shipper in desperation advised his agent to unload the car to the best advantage, so on an appointed day the car was sold. There were some fifty hucksters on the scene. About forty-eight stood on one side, grinning and laughing and talking, and two on the other side did a little spirited bidding against each other. The apples were finally sold for a song. All fifty of the hucksters drove their wagons up to the car door, loaded them and covered the entire city, selling to the consumer direct at prices no legitimate retailer or wholesaler could meet.

Now, the sale of that car of apples, under those circumstances, demoralized the market for sometime in that city. How much better it would have been to have rolled that car elsewhere and disposed of it. By selling it as it was sold, it hurt the agent, it hurt the wholesale trade, the retail trade and the shipper played a losing game. We have seen cars that were rejected in some markets rolled to other markets, and sold at a satisfactory price.

FRUIT growers should all be interested in inspection. Much progress has been made in the last two years in standardization and inspection. Much of the inspection at point of origin is

done by state agencies and it is generally pretty efficient. The inspection at the receiving point is done generally by the government officials, and on the whole is very satisfactory.

A shipper, whenever there is any question concerning the quality or grade of a shipment, should have inspection. He can hire several private organizations which will do this for him or he can get the government service for about \$4.00 a car. We would suggest to shippers who are several days distant from a market, however, that they ask the government inspector to send them a night letter, giving the inspection in full.

While this will cost a little more money, it is a good investment.

Fruit should be inspected in the car, for when once unloaded, it is generally considered to be the purchaser's fruit.

In using government inspection or any other form of inspection, you must remember that the inspector is not a sales agent. He is not a go-between the shipper and purchaser but he is simply supposed to report in a fair way the true condition of the fruit.

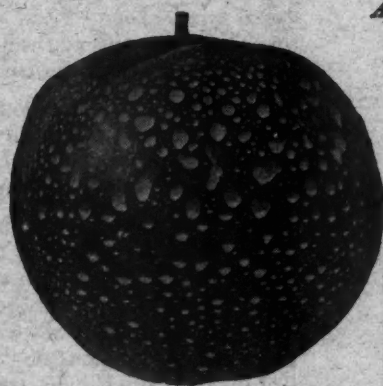
The great value of government inspection or any other similar inspection is that it prevents downright robbery on the part of unscrupulous purchasers. We would urge that more and more shippers resort to inspection service.

THE strawberry season on the whole has been very satisfactory for the southern, extreme south and middle south shippers. At this writing the northern berries are beginning to come in very heavily. Some of the southern states grew from two to three times as many strawberries as a year ago and some of the larger markets, at times, have been over-supplied. There is need for more co-operative bodies among the strawberry shippers in

order that a saner distribution can be obtained.

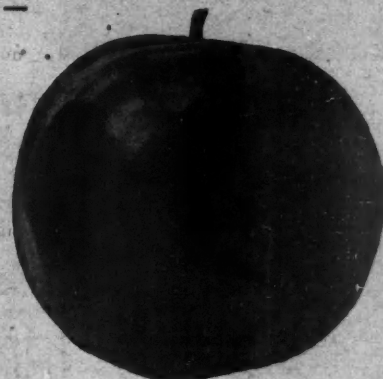
THE canning fruit market has been a little dull during the past two or three months but it has picked up of late, since it has been shown that there will be a light sweet cherry and apricot crop, and that some sections will only have about a third of the red cherry crop. Indications are that the old pack will all be cleaned up and that there should be a good demand this coming year for nearly all lines.

THE dried fruit market is in a very healthy condition owing to the fact that practically all the old stocks are being cleaned up and there has been considerable activity in new sales, especially prunes. This is particularly true of the foreign market which has been good. The domestic market has been a little quiet. Cooperative bodies such as the Oregon Growers' Cooperative Association and the Washington Growers Packing Corporation of Vancouver, Washington, have made larger pre-season sales than is customary. Prices have been slightly in advance of last season, especially on the smaller sizes, and there is a feeling of optimism on the part of the shippers.



Without Kayso

Apples sprayed with arsenate of lead —
From actual photographs



With Kayso

KAYSO makes the Spray Spread and Stay

KAYSO—the casein spreader and adhesive, insures a complete covering of poison on your maturing fruit.

There are no unprotected areas when KAYSO is used.

Give your trees KAYSO protection now. The Summer months are the time of heaviest loss from worms and disease.

The Ordinary spray collects in drops. Only the surfaces actually covered by the blotches of poison are protected. The numerous small areas between the blotches afford places of infection for brown rot, scab and other fungous diseases. Worms enter the fruit between the blotches of poison.

The thin, uniform film produced when KAYSO is used, gives effective protection against infection and worm infestation.

KAYSO makes the poison adhere persistently, regardless of rains.

In the summer cover sprays KAYSO produces a thin film which is practically invisible and prevents that blotchy, conspicuous poison coating so objectionable when the mature fruit goes on the market.

KAYSO is safe—no spray injury can result from its use.

KAYSO is convenient—you sift it into the spray tank.

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Use KAYSO with Bordeaux Mixture, Arsenate of Lead, Nicotine Sulfate and all Sulfur Sprays.

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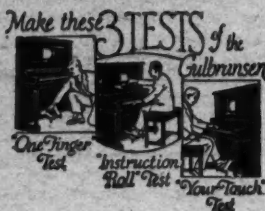
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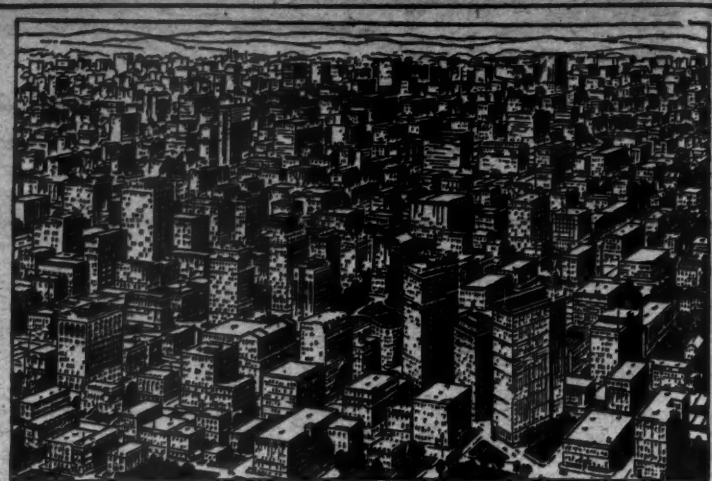
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Only one-fifth of the buildings owned by the Bell System are shown in this picture.

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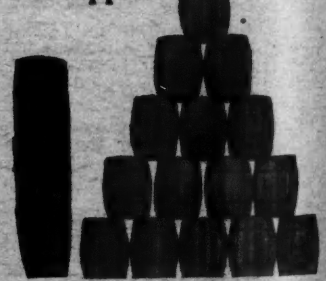
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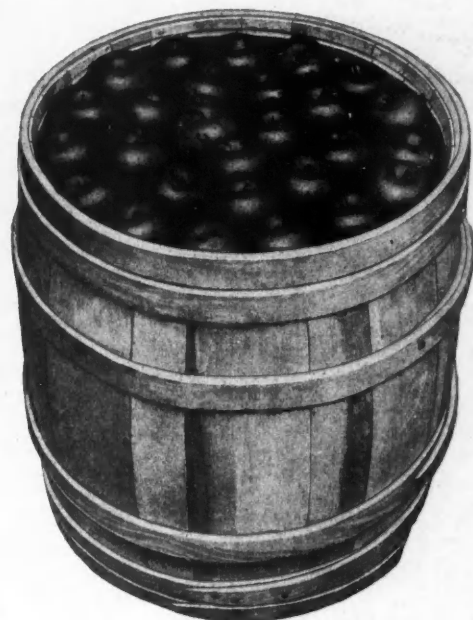
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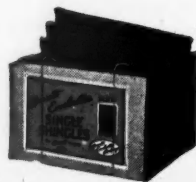


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